AMERICAN JOURNAL OF

PUBLIC HEALTH

and THE NATION'S HEALTH

Volume 43 **DECEMBER, 1953** Number 12

ANNUAL INDEX

Published Monthly at 374 Broadway, Albany 7, N. Y., by the

AMERICAN PUBLIC HEALTH ASSOCIATION, Inc.

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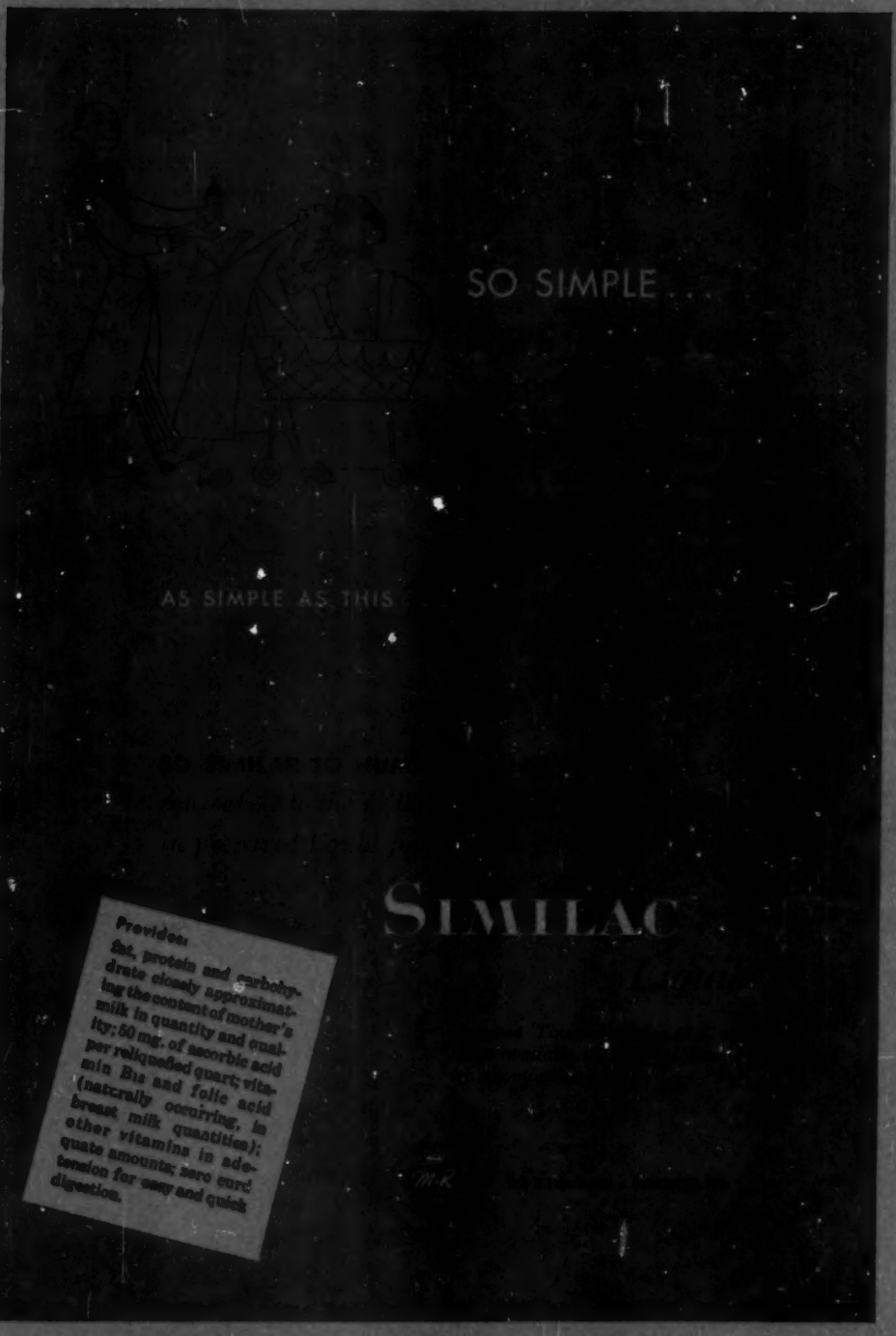
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Volume 43 — December, 1953 — Number 12

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Contents of previous issues of the American Journal of Public Health and The Nation's Health can be found by consulting the International Index in your Library.

Published by the American Public Health Association, Inc., at 374 Broadway, Albany 7, N. Y.
Executive Office, 1790 Broadway at 58th St., New York 19, N. Y.

NOTICE:—Subscription $10.00 per year for United States, Cuba and Mexico, South and Central America; $10.50 for Canada; and $11.00 for other countries. Single copies $1.00 postpaid.

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Address correspondence regarding editorial contents and manuscripts to C.-E. A. Winslow, Dr.P.H. Editor, 1790 Broadway, New York 19, N. Y.

Address correspondence regarding subscriptions, advertising, reprints, etc., to American Public Health Association, Inc., 374 Broadway, Albany 7, N. Y., or 1790 Broadway at 58th St., New York 19, N. Y.

Entered as second-class matter at the Post Office at Albany, N. Y., September 17, 1932, under the Act of March 3, 1879.

Acceptance for mailing at the special rate of postage provided for in Section 1103, Act of October 3, 1917.

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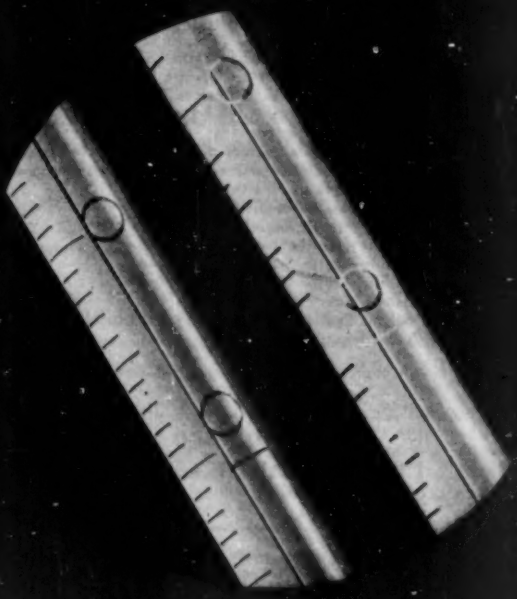

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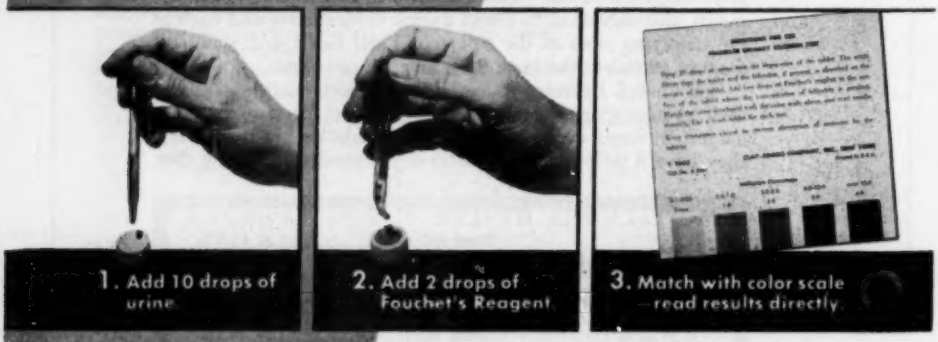

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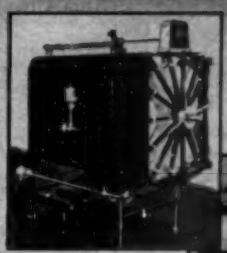

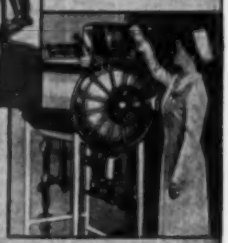

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*Pollack, H., and Halpern, S. L., in collaboration with the Committee on Therapeutic Nutrition, Food and Nutrition Board: Therapeutic Nutrition, Publication 234, National Academy of Sciences—National Research Council, 1952.

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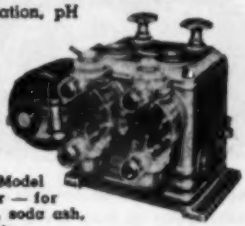

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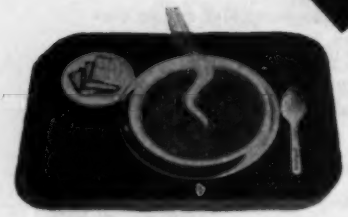

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(1) Hopkins, J. G., et al: J. Invest. Dermat., 7, 239-253, 1946.

(2) Sullivan, M., and Fishbein, H. A.: J. Invest. Dermat., 10, 293-299, 1948.

(3) Peck, S. M., and Rosenfeld, H.: J. Invest. Dermat., 1, 237-265, 1938.

(4) Schwartz, L., et al: J.A.M.A., 132, 58-62, 1946.

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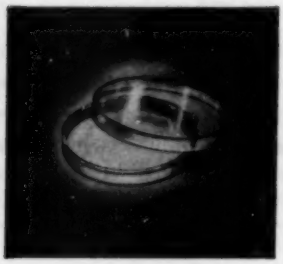

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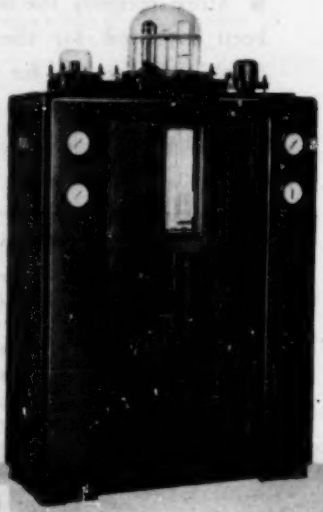

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American Journal of Public Health
and THE NATION'S HEALTH

Volume 43 December, 1953 Number 12

"If all health workers . . . can understand better the broad objectives toward which the total health activity of the community is directed, they will do a better job and have the important psychological satisfaction of intelligent participation in a great enterprise." That is this paper's invitation to reader participation, provocatively presented.

The Basic Unity of Private Practice and Public Health*

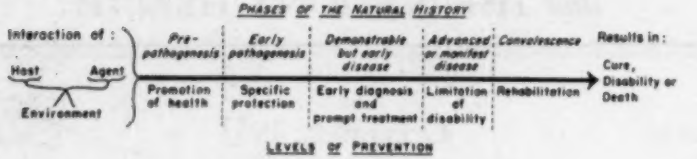
HUGH R. LEAVELL, M.D., DR.P.H.
Professor of Public Health Practice, Harvard School of Public Health, Boston, Mass.

PRACTICING physicians who emphasize the curative aspects of medicine in their work with individual patients and families, as well as physicians on the public health team, sometimes lose sight of their common goals in the heat of discussions about which group shall be responsible for some particular job that needs doing. It is useful to recall that diseases and other disorders of health with which both private practitioners and public health workers deal have a biological basis as they occur in "Nature." When not influenced by man's control measures, they go through the stages of a more or less typical natural history which involves the interaction of the human host, the agent directly responsible for the disease or disorder and the environment in which both host and agent meet.

When we forget the biological unity of our common problems, conflicts between private practice and public health lose their proper perspective. These conflicts, though real and in need of resolution, are based not upon fundamental differences in the biological processes with which they deal, but upon other factors. For example, conventional public health is only about one hundred years old, and as a junior partner, it lacks the respect that goes with "age." An additional factor is that the problems of sanitation and communicable disease control, which were quite properly regarded as public health's first priorities, could be solved only by organized community action. The practitioner could treat his indi-

* Presented at the Twenty-fifth Anniversary Celebration of the Columbia-Presbyterian Medical Center, New York City, October 12, 1953.

NATURAL HISTORY OF A DISEASE PROCESS



vidual patients who had typhoid fever with relatively little community assistance. The community itself, however, had to provide for the needed water purification, pasteurization of milk, sewage disposal, and even the manufacture of typhoid vaccine. The solution of community problems of this type demanded relatively simple cooperation from individual citizens since their representatives in the town council could vote the necessary funds for needed sanitation projects. There was little or no competition here with the private practice of medicine.

As earlier public health problems are being conquered in countries like the United States, fewer lives are lost at younger ages, and life expectancy at birth is increased. This naturally adds to the relative importance of degenerative disease and other long-term illness and of accidents. These conditions, because of their sheer magnitude and the complex community organization required to deal with them, have become health problems in which the public must take a hand if they are to be solved, and which are, therefore, of public health importance. Such problems cannot be solved by a single action of the town councils as could the appropriation of funds for a water purification plant. Attempts to control the major health problems today require a great deal of cooperation from the individual patient, his family, and his physician, just as did treatment of the individual case of typhoid. It is at this point that, in the absence of thoughtful planning, apparent competition between private practice and public health may arise.

The biological nature of disease itself can be the unifying factor of greatest importance, giving real significance and a common purpose to the manifold efforts man makes to deal with his common enemy, disease.

Disease does not appear out of the blue without "warning," but is a dynamic biological process which results when there is a shift in the delicate balance in the interaction between host, agent, and environment. This shift may be due to lower resistance of the host, increased virulence of the agent, some important change in the environment, such as a flood or other disaster, or other almost infinite changes and combinations of change.

Each disease process produces a more or less typical pattern, going through successive stages of a definable natural history. Epidemiology represents an orderly approach to the study and elucidation of this natural history of disease as it affects groups of people (or animals). A series of phases in the natural history may usually be distinguished:

1. *Prepathogenesis*—There may be disturbances in the delicate balance between host, agent and environment which may ultimately be either favorable or unfavorable to man, occurring before the course of the disease itself begins.

2. *Early pathogenesis*—Before the disease is recognizable in the individual, even with the most efficient diagnostic technics. An example of this might be the period of incubation of a communicable disease or the period during which an industrial worker must be exposed to harmful concentrations of silica dust before silicosis can be diagnosed clinically.

3. The phase of *demonstrable* but *early* disease—During this period diagnosis may be made or reasonably suspected, though new technics may be required to make this possible. If suitable treatment is available, its application at this time will quite often be more effective than if it is applied later in the disease.

4. The phase of *advanced or manifest disease*—Treatment during this period, though usually relatively less effective than when applied earlier, may still cure or retard the progress of disease and limit the incapacity which might result if suitable treatment were not provided.

5. *Convalescence*, which may be slow or rapid—There may be chronicity with relapses; residua or sequelae may remain. There may be a more or less "stationary" phase, represented by latency or lack of progress of the disease process.

The basic technical principles of dealing with a particular disease are essentially the same all over the world, with certain variations due to climate, geography, and the social life and culture of the people. For example, malaria control is at present usually based primarily on destruction of the adult mosquito by using residual DDT sprays in dwellings. The vectors differ in various places and they have different habits; houses also vary greatly as does the education of the people. However, the basic technical principles of control are quite similar everywhere.

When we understand the natural history of a disease process it is evident that there are strategic points at which barriers to progress of the development of disease may be interposed during the successive phases of this natural history.

These barriers interposed to prevent or delay the disease process in fulfilling its natural history may be divided arbitrarily into broad bands which may be called "levels of prevention,"[1] to emphasize the preventive approach to disease control. These broad bands may conveniently be designated as:

1. Promotion of health
2. Specific protection
3. Early diagnosis and prompt treatment
4. Limitation of disability
5. Rehabilitation

These "levels of prevention" are related to phases in the natural history of a disease, as may be illustrated in the case of syphilis, for example:

Phases in Natural History of Disease	*Levels of Prevention*
1. Prepathogenesis Before man himself is demonstrably "diseased," the delicate balance between host, agent, and environment may be disturbed favorably or unfavorably.	1. Promotion of health Aimed at achieving the best state of physical, mental, and social health attainable through full application of our existing knowledge. Examples: Sex education; general improvement in housing and other socioeconomic conditions; provision of proper recreational facilities.
2. Early pathogenesis Before disease is recognizable with existing diagnostic tools.	2. Specific protection Prevention in its strictest sense. Examples: Prophylaxis; control of prostitution; avoidance of sexual promiscuity.

Phases in Natural History of Disease—Con.	*Levels of Prevention*—Continued
3. Demonstrable but early disease	3. Early diagnosis and prompt treatment If health promotion and specific protection fail to halt the progress of the natural history, the disease may "take hold" and progress at least to the point where it may be detected by earlier diagnosis than may have been possible a few years ago. Prompt treatment may be a most effective means of preventing complications, sequelae, and in the case of communicable disease, of transmission to others. Examples: Case finding to detect early syphilis and intensive early treatment; examination of case-contacts, etc.
4. Advanced or manifest disease	4. Limitation of disability When prevention is not possible in earlier phases of the natural course of the illness, wise care may still interrupt the course and limit disability or defect or prevent premature death. Examples: Adequate treatment of nervous system or cardiovascular syphilis, etc.
5. Convalescence	5. Rehabilitation After the disease process becomes relatively stabilized, it is often possible to prevent complete disability and dependence, and make maximum use of remaining capacity by physical, mental and social rehabilitation, including vocational training. Examples: Rehabilitation of the blind, tabetics, paretics, and patients with cardiovascular residua.

In the case of many diseases, much more research is needed before the natural history is understood and before effective barriers to progress of the disease are discovered. As more knowledge becomes available, preventive measures may be taken at earlier and earlier levels. For example, in poliomyelitis cases, rehabilitation at the fifth level of prevention was, until recently, perhaps our most effective approach. With knowledge of the action of gamma globulin there may now be specific protection at the second level. When a vaccine becomes available this specific protection can be made more lasting.

Action at any or all of the five levels of prevention may properly be called "preventive medicine" if the word "preventive" is used in its broad meaning of looking ahead to forestall disease, disability or premature death. In this sense, preventive medicine is essentially synonomous with the best medicine that can be practiced at a given time, since the best kind of medicine must necessarily involve "looking ahead" as well as treating the disease condition already existant. Preventive medicine may be defined as the science and the art of preventing disease, prolonging life and promoting physical and mental health and efficiency. This definition obviously applies to the work of either the private practitioner dealing with his individual patients or the public health worker dealing with groups of individuals in his community, as both prac-

titioner and public health man may use identical procedures with individual patients.

Public health may well be considered a division or area of preventive medicine, the part of preventive medicine which requires organized community action or effort because for various reasons the problem has become too complex to be solved satisfactorily by the individual practitioner and his patient.

Organized community action for health has essentially the same meaning as "public health" if Winslow's excellent and time-proved definition of public health is used:

> Public health is the science and the art of preventing disease, prolonging life, and promoting physical and mental health and efficiency through organized community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organization of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of the social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health.[2]

While the natural history of disease is a biological process subject to "Nature's" laws and more or less the same in different parts of the world, *action* at the various levels of prevention is more directly under man's control. Therefore, in different countries and under varying socioeconomic and cultural conditions the community will determine who will be responsible for the preventive activities considered desirable in that particular community at the various levels of prevention. More widespread knowledge in the social science field will give us a better understanding of how and why man behaves as he does.

Activity in this broad type of preventive medicine may be carried on by one or more of the following:

1. The individual himself or his family
2. Private practitioners
   a. Qualified practitioners of medicine which is based on use of the scientific method of research
   b. Subprofessional practitioners under more or less supervision by qualified practitioners
   c. Various types of "faith healers" or cultists
   d. Witch doctors or their equivalent
3. Varying degrees of organized community action (public health)
   a. Varying degrees of voluntary and of governmental activity
      (1) Varying degrees of separation or of combination of emphasis on "preventive" and "curative" activities

Numerous factors are responsible for the variations which may be found in the organization of health services in different situations throughout the world. Some of these factors are:

1. Economic status of the people
2. Social organization
   a. Degree of urbanization
   b. Development of transportation and communication facilities
   c. Degree of industrialization
   d. Presence or absence of middle class; status of women in relation to development of the nursing profession, etc.
3. Relative prevalence of different types of disease
4. Educational level of the people
   a. The general public
   b. The health professions (and the extent of specialization)
   c. Subprofessional health workers
5. Political philosophy of the population; emphasis may change with change of political party in power.

Because health problems are so vast and our knowledge of them so great, specialization is required for the most effective work. Specialized workers, whether on the production line of an automobile factory or in a huge medical center, tend to lose sight of the ultimate product which the total organization is trying to produce, whether it be useful automobiles or effective, healthy people.

An understanding of the biological natural history of disease and of man's social approaches to dealing with it provides a broad basis upon which different members of the health team can work together effectively toward a common goal.

In the past, workers in conventional public health have tended to concentrate their efforts at the first and second levels of prevention; private practitioners, clinics, and hospitals have emphasized the third and fourth levels, and comparatively little has been done by either group in rehabilitation, the fifth level of prevention. If all health workers, private practitioners as well as public health people, can understand better the broad objectives toward which the total health activity of the community is directed, they will do a better job and have the important psychological satisfaction of intelligent participation in a great enterprise. Planning and coordination of the various activities carried on by the many practitioners and community agencies which together comprise the total health program obviously may be accomplished more effectively.

Our problem is so vast and our resources so limited that we cannot afford to waste our energies in profitless discussions. If we see the basic unity between private practice and public health founded on the biological nature of disease, then as members of the health professions, we can take our proper position of leadership in helping the community decide how the available social resources can be used to best advantage for all.

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ACKNOWLEDGMENT—The author is grateful to Dr. E. Gurney Clark, professor of epidemiology, Columbia University School of Public Health, and to Dr. John E. Gordon, professor of epidemiology, Harvard School of Public Health, for their essential roles in the development of the ideas here expressed.

Public Health Service Examinations

The Public Health Service is scheduling examinations for dental and medical officers in the Regular Corps. For dentists, examinations will be in the Assistant and Senior Assistant Dental Surgeon grades; for physicians, Assistant Surgeon and Senior Assistant Surgeon. Applicants must be citizens, at least 21 years of age, and must have graduated from a recognized professional school. Seven years of collegiate and professional training and appropriate experience are necessary for the Assistant grade and at least 10 years for the Senior Assistant grade. Salaries start at $6,017 for the Assistant grade and $6,918 for the Senior Assistant grade. Applications for medical officers must be filed by December 24, 1953; for dental officers by January 22, 1954. Application forms from: Chief, Division of Commissioned Officers, Public Health Service, Washington 25, D. C.

American health workers will find it of interest to compare the duties of our own environmental engineers, sanitarians, or plain sanitary inspectors with those of their overseas counterparts, as their jobs have evolved in recent British public health practice.

Training and Utilization of Sanitary Inspectors in the United Kingdom*

A. DENTON OGDEN, M.B.E., F.R.S.I., F.S.I.A.

Chairman of Council, The Royal Sanitary Institute, London; and Chief Sanitary Inspector and Director of Public Cleansing to the Rural District Council of Chelmsford, England

THE post of "sanitary inspector" was first created in England by the Public Health Act of 1848, although at that time the designation was "inspector of nuisances" and the duties of the officer were limited to those suggested by that designation. The 1848 Act was the foundation of our modern public health legislation, constituting a central government control of affairs as exists today. The local Government Board was formed in 1871; this was re-formed in 1919 as the Ministry of Health and in recent years the Ministries of Food and of Housing and Local Government were formed which took over from the Ministry of Health certain powers and duties.

In the middle of the eighteenth century, the annual death rate in the City of London was one in 24, or over 40 per thousand population. Practically 5 per cent of the population died every year, even in the absence of any pestilence. In 1800 the death rate had fallen to nearly 20 per thousand population. In 1820 it was less than 20 and in 1829, for the first time on record, the number of births in the city exceeded the number of deaths. It is not possible to compare the city's death rate of today with those of these earlier years, as different conditions prevail—the city being given over mainly to business premises. The death rate in my district, which is rural in character, is only 10.5 per thousand population.

Immediately prior to 1848, there was a great awakening to the importance of public health. A committee of the House of Commons was appointed "to enquire into the circumstances affecting the health of the inhabitants of large towns, with a view to improve sanitary arrangements for their benefit." The outstanding figure in this period was Edwin Chadwick, who later received a Knighthood for his pioneer work and who, incidentally, was the first president of our Sanitary Inspectors' Association.

The General Board of Health was created under the authority of the Public Health Act, 1848, and was given a life of five years, but in 1854 a bill proposing its extension was defeated in Parliament. This was due in some measure to resentment against the forceful and vigorous activities under the driving power of Chadwick, for the

* Presented before the Engineering Section of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 11, 1953.

country resented government control over what were regarded as matters of local concern. The "Times" of that period commented: "The English people would prefer to take the chance of cholera rather than be bullied into health." A new board was appointed, presided over by a paid president eligible to sit in the House of Commons, and this practice is still in existence.

In 1855, the designation "sanitary inspector" began to replace that of "inspector of nuisances" and local councils were given authority to appoint more than one inspector. Very little was prescribed about the duties of these officers; one duty was to notify the local council of any nuisance and another was to inspect food intended for human consumption. There was very little improvement in the country's sanitary condition as the result of the Act of 1855, but a visitation of Asiatic cholera in 1865 was responsible for the Sanitary Act of 1866 which made it the duty of the local council, either by itself or by its officers, to inspect its district for nuisances requiring abatement and it gave the Secretary of State authority to enforce any neglected duty. The Public Health Act of 1875, the keystone of public health legislation, repealed most of the previous Acts and the 1936 Public Health Act brought the 1875 Act up to date.

The designation "inspector of nuisances" was in common use until 30 years ago, in spite of the fact that this officer's duties and responsibilities had widened tremendously, a matter which I will refer to later. It is significant that sanitary inspectors and others now consider the almost 100-year old designation to be obsolete and not giving a true description of present-day duties. Although "sanitary," according to the *Oxford Dictionary,* means "appertaining to health," the public generally associates the word with drains and nuisances. This does the sanitary inspector a grave injustice, since dealing with such items forms only a small portion of his work. Several alternative designations have been considered by the Sanitary Inspectors' Association; but the consensus is in favor of "the public health inspector." This designation has been submitted to the Government Working Party which has been considering the duties, recruitment, training, and qualification of sanitary inspectors and whose report was issued after this paper was written and shortly before I left England. Among other recommendations the Working Party suggests the designation shall be "Public Health Inspector."

LOCAL GOVERNMENT

It may be appropriate here to explain briefly the various types of local authority. We have the administrative counties (areas corresponding approximately to our geographical counties), and the smaller, compact, and densely populated areas representing in most cases the principal cities and towns and known as county boroughs. The administrative counties may be subdivided into smaller areas called county districts, which include noncounty boroughs or municipal boroughs, urban districts, and rural districts. Rural districts are further divided into parishes.

For each of these types of area a council is elected and each council elects its mayor or chairman annually. While party politics are in evidence in county, county borough, and urban councils, there is little if any organized party activity in rural councils. This does not necessarily mean that rural district councils are any less efficient. In fact, team spirit—that most desirable factor—is especially evident in these areas.

The appointment of sanitary inspectors by all local authorities, except county and parish councils, is compulsory and councils other than county boroughs may claim contributions from

the county council toward the salaries of sanitary inspectors by conforming to certain conditions. In these cases the sanitary inspector cannot be removed from office without the consent of the ministry who must first hold an inquiry. This protection of the sanitary inspector gives him a certain independence and encourages him to carry out his often difficult duties without too great a fear of political interference. Officers of local authorities remain in office irrespective of which political party is in power—either centrally or locally.

With the consent of the appropriate minister, a local authority may add to, or vary, the duties assigned to its sanitary inspectors, whose duties therefore cover a very wide field. In the larger districts it is the practice for inspectors to specialize in one or other of the principle duties (meat and food inspection, smoke abatement, factory inspection); whereas in the smaller districts they carry out all the duties, usually in a given area of the district.

Sanitary inspectors desirous of showing their ability in specialized fields take one or more of the examinations held by the Royal Sanitary Institute. These examinations are for inspectors of meat and other foods, smoke inspectors, and inspectors qualified in sanitary science and tropical hygiene. It is quite a common practice, too, for sanitary inspectors to belong, after qualification by examination, to other allied professional organizations, such as the Institute of Public Cleansing, Institute of Sanitary Engineers, and the Institute of Housing.

Appointments are made by the employing authorities, after advertisement in the technical press, and sanitary inspectors must be qualified by examination.

TRAINING AND EXAMINATION

When the Royal Sanitary Institute introduced examinations for sanitary inspectors many years ago, they were open to anyone with or without educational qualification and, consequently, the standard of the officer was very different from what it is today. The Examination Joint Board demands from candidates an ever-increasing standard of education and the benefits of this policy are reflected in the caliber of the officer of today and in the work of our public health departments.

To be eligible for examination every candidate must possess the matriculation certificate of a university in the Commonwealth, or its equivalent. He must also produce evidence of having attended and successfully completed the first and second years of a senior course approved by the Ministry of Education for the award of the National Certificate or Diploma in Building, in such manner as to qualify for admission to the third year of the course. A candidate must also produce evidence of having regularly attended a course of lectures and demonstrations approved by the Examination Joint Board, who supply a list of colleges at which such courses may be taken.

Evidence must be produced of practical training in all branches of the work and duties of a sanitary inspector and such evidence must consist of one of the following: (1) having held for at least one year the office of surveyor, assistant surveyor, sanitary inspector, assistant sanitary inspector, or health visitor under a local authority and having been appointed and paid by that authority; or (2) having worked full time for 250 days in a public health department spread over a period of not less than one year and having received instruction during that time in all branches of the work and duties of a sanitary inspector for not less than 300 working hours; or (3) having had continuous practical experience during a period of at least three years of an approved building craft and also of having worked 125 days full time in a public health depart-

ment spread over a period of not less than six months and of having received instruction during that time in all branches of the work and duties of a sanitary inspector for not less than 150 working hours.

The syllabus of the examination is as follows:

1. The provisions of the acts, orders, and model by-laws relating to the duties of sanitary inspectors in London or the provinces, or both. The principles and practice of administration and enforcement.

2. Methods of inspection of buildings, dwellings, common and other lodging houses, vessels and canal boats, dairies, milkshops, cowsheds, bakehouses, markets, slaughterhouses, workplaces, stables, and offensive trades and nuisances especially connected with trades and manufactures. The detection and prevention of smoke and other nuisances.

3. The physical characteristics of drinking water, sources, and methods of supply; the various ways in which it may be polluted during collection, storage, and distribution; the means for preventing such pollution; and the pollution of rivers, lakes, wells, and ponds. Sources and dangers of pollution.

4. Duties of the inspector in relation to food. Inspection of food. Characteristics of good and bad food (including fish, vegetables, and fruit). Milk and milk products; the grading of milk. Food in relation to infectious and other diseases. Sampling of food under the Food and Drugs Act, etc. The recognition and inspection of carcasses, joints, and organs of animals used for human consumption. The characteristics of home-killed, imported, and cured meat. The diseases of animals intended for food; the appropriate action in regard to diseased meat.

5. The composition of air and the various causes of pollution. The principles of ventilation, and simple methods of warming, ventilating, and lighting rooms and buildings. Measurement and calculation of areas, cubic space, etc.

6. Sites, foundations, roofs and dampproofing of structures. The advantages and disadvantages of various sanitary appliances, the inspection of builders' and plumbers' work, the interpretation of drawings and of specifications. Preparation of schedules of repairs.

7. A knowledge of various systems of drainage and their adaptability to particular conditions; construction of drains; leveling and methods of drain testing. Sewage treatment and disposal.

8. Scavenging and various systems for dealing with trade, house, and other refuse.

9. Nature of infection; sources and mode of spread. Incubation periods of infectious diseases. Preventive measures against infection and infectious diseases. Disinfection.

10. Life history of flies, pests, and vermin; preventive measures; destruction. Disinfestation of premises.

11. The meaning of statistical terms. The purpose and methods of calculating the ordinary rates, such as birth rate, death rate, and rate of infant mortality.

12. A knowledge of the general duties of the office and methods of keeping the books and records. Preparation of reports.

Examinations are held at various centers throughout the country and occupy three days. The examination is partly written and partly oral and practical. Great importance is attached to practical knowledge, such as a candidate should have acquired in the course of his training. A desirable high standard of theoretical knowledge cannot compensate for any failure to satisfy the examiners in respect to a thorough practical familiarity with the work and duties of a sanitary inspector. The Government Working Party to which I have referred has also made recommendations regarding the examinations. They are:

(a) that a new examining body to be known as the Public Health Inspectors' Education Board should be established, its constitution to include a greater representation from the Sanitary Inspectors Association; the Chairman of the Board should be selected from its members by the Minister of Health;

(b) that the present scope and standard of the qualifying examination should be that of the present basic and meat and other foods examinations combined and, in addition, more attention should be given to smoke, insect pests, local government administration and public health in general;

(c) that the written papers should be increased in number;

(d) that there should be an intermediate examination for students after the first two years of study;

(e) that theoretical instruction should normally comprise a four year course;

(f) that practical training should be obtained

in the service of local authorities approved for the purposes by the examining authority and should be taken concurrently with theoretical training.

CONDITIONS OF EMPLOYMENT

When he has qualified, the next step is to seek an appointment. The successful candidate consults the advertisements issued by local authorities. Candidates for examinations are decreasing in number and there is a shortage of inspectors. The reason for this is easy to find—it is the unattractive salary offered in comparison with the salaries paid to other officers. Salaries of local government officers up to £1,025 a year are controlled by a National Joint Council composed of representatives of local government employers and employees. Sanitary inspectors consider that they have been unfairly dealt with by the National Joint Council's assessment of their value. As an example of this, a clerk can study for the local government clerical examination in a period of nine months and, if successful, becomes eligible for a minimum salary of £470 a year—£5 more than the newly qualified sanitary inspector receives after his long period of training.

The maximum salary for an assistant or district inspector is usually £645 after some 10 years' service. In considering these figures, it should be remembered, of course, that our cost of living is on a lower scale than that of the United States. The salary of a chief sanitary inspector is fixed by his local authority and it may or may not be in the National Joint Council's range of salaries.

Officers receiving up to £835 per annum have up to 21 working days leave each year, plus general national holidays. Officers receiving above this figure have a leave period at the discretion of their local authority. All local government officers now contribute to a superannuation fund and after 40 years' service can retire on a maximum of two-thirds of their average annual salary for the preceding five years.

DUTIES OF THE SANITARY INSPECTOR

Some of the statutes, regulations, orders, etc., relating to the powers and duties of the inspector confer specific duties upon the sanitary inspector while in other cases it is normal for the local authority to appoint him as the authorized officer. His more important functions are summarized:

General Duties

He performs all the duties imposed on him by statute, orders, or regulations, or directions given from time to time by the minister, and by any by-laws or instructions of the local authority. He keeps himself informed of the sanitary circumstances of the district, by inspection, both systematically and at intervals, as occasion requires.

Specific Duties

1. The sanitary inspector has many duties under the Housing and Public Health Acts, being responsible for the inspection and supervision of the repair of dwelling and tenement houses, the abatement of nuisances, the closure of underground rooms, dwellings or parts of dwellings, and the demolition of individual houses. Detailed inspection and reporting on clearance and redevelopment areas are carried out by the sanitary inspector.

2. The sanitary inspector must inspect all shops and places kept or used for the preparation, storage, or sale of any article of food for human consumption and examine any article therein and take such proceedings as may be necessary.

This involves great attention to meat and meat products, milk and ice cream, and their distribution, and such premises as slaughterhouses, catering establishments, dairies and bakehouses, factories, wharves, and markets.

The special knowledge of the sanitary inspector on matters relating to food and food premises enables him to advise on the suitability of premises, the best type of equipment, and the hygienic methods of handling all kinds of food.

3. The sanitary inspector is required to keep himself informed of nuisances that require

abatement and for that purpose he must inspect his district, both systematically and as occasion requires. He reports such conditions to his local authority and takes such action as may be necessary to abate the nuisances and prevent their recurrence.

4. The sanitary inspector reports to his authority any noxious or offensive businesses, trades, or manufactories established within the district. He regularly inspects such premises to ascertain that by-laws or regulations for the conduct of such businesses are not contravened, and reports to his authority such contraventions or the existence of any nuisance arising therefrom and takes any necessary action.

5. The inspector supervises the service of public cleansing (including refuse collection and disposal). This entails the organization of the collection and disposal of house and trade refuse by hygenic means in the most economic method suitable to the district. Many local authorities have special full-time officers for this important work and for districts with a population of 80,000, or more, it is recommended that such an officer be appointed, his specialized knowledge being an advantage. Many sanitary inspectors are responsible for the public cleansing service in their districts and hold the special qualification of the Institute of Public Cleansing.

6. In the control of pest infestation, the sanitary inspector is normally the officer authorized by the local authority to carry out this work. This requires the organization of systematic inspection and treatment of all premises and sewers liable to infestation by rodents and such action as is necessary to abate infestation.

7. The inspection of shops and the enforcement of the statutory provisions relating to ventilation, temperature, and sanitary conditions in such premises is a duty normally imposed upon the sanitary inspector by the local authority, while the provisions relating to the hours of closing and the employment of young persons may be included in his duties in some districts.

8. A duty normally placed on the inspector is the regular inspection of factories and he is responsible for the enforcement of the provisions of the Factories Act relating to cleanliness, overcrowding, temperature, ventilation, and drainage of floors in factories where power is not used; the adequacy of sanitary accommodation in all factories; and the supervision of outworkers' premises.

9. The sanitary inspector is the officer responsible to the local authority for the control of movable dwellings, tents, vans, and sheds; and in these days of housing shortage many problems are evident. He reports on the suitability of sites for such dwellings, the issuing of licenses to persons allowing land to be used as sites for camping purposes or licensing authorized persons to erect or station and use such dwellings.

10. The inspection and report for registration and subsequent supervision of canal boats used as dwellings is another responsible duty.

11. The sanitary inspector is responsible for making smoke observations and the inspection of furnaces to insure that as far as practicable the emission of smoke to the atmosphere is prevented. He takes all necessary steps for the abatement of smoke nuisances by giving advice or initiating legal action for contravention of the law.

12. Investigation into cases of infectious diseases or epidemic diseases, with the subsequent supervision of contacts. Inquiries are made into outbreaks of food poisoning to trace the causative agent and to prevent the spread of infection.

13. The chief sanitary inspector usually attends meetings of the council and, of course, of its Public Health Committee and reports upon his activities. Consequently, his council is well able to assess his value and ability. Records of the work of his department must be kept, including notices served and of all action taken in the course of the duties of the members of his inspectorial staff. He is required to attend courts of law and public inquries and to give evidence on behalf of the local authority.

14. Among the normal duties of the sanitary inspector is the supervision of drainage and plumbing work, but the scope of this work varies in different districts. In some, he is responsible for the examination and testing of existing drainage systems and the supervision of repairs; in others, he is also the officer to whom all drainage plans are submitted before being passed to the council, and subsequently he supervises the carrying out of the work. His technical advice and guidance is widely sought by the public and, although such advice is not specifically required of him under the Sanitary Officers Order, its value is recognized as an essential part of his work and advice is always readily given.

15. The provision of suitable and sufficient sanitary accommodations in all premises, including houses, factories, shops, and places of public entertainment.

16. In some areas the responsibility for the supervision of sewage disposal is that of the sanitary inspector. In all districts he is concerned with the problems arising therefrom,

with problems involved in the discharge of trade effluents and the pollution of rivers.

17. The safeguarding of water supplies and the question of the adequacy of supplies are important items. Samples are taken for analysis as to purity. The sanitary inspector is concerned with the protection of supplies from contamination and it is his duty to see that all dwellings have as safe and suitable supply as their situation and the circumstances allow.

18. The keeping of animals involves many duties. These include, in addition to the prevention of nuisance, the prevention and control of communicable diseases among animals and their transmission to man, and the supervision of the welfare of pet animals.

This listing of duties is not exhaustive for they vary widely from place to place and from time to time. There are, in fact, nearly 800 acts, orders, and statutory instruments with which sanitary inspectors and health officers are concerned. I think it will be evident, however, from what I have said that the work of a sanitary inspector in the United Kingdom is a great responsibility, not in any way comparable with that of his predecessors and much greater now than in prewar days.

Studying Population and Resources

The Population Council, Inc., has recently been established as a nonprofit corporation to encourage research and education about the relations of the world's population to its material and cultural resources. Trustees are Drs. Frank G. Boudreau and Thomas Parran, and Detlev W. Bronk, Karl T. Compton, Frank W. Notestein, Frederick Osborn, John D. Rockefeller, III, and Lewis L. Strauss.

The council has already made a small number of research grants to universities and other established organizations and has established a number of fellowships for the training of students in the field of population.

The fellowship program will assist students in the social and natural sciences at the predoctoral or postdoctoral levels in securing advanced training in the study of population. For the academic year 1954–1955, approximately six fellowships for study in the United States and elsewhere will be divided between students from the United States and from other countries. Fellows will normally receive support for a year's full-time work. The basic annual stipend is $2,500 which may be supplemented for dependents and for travel or exceptional expenses. Preference is given to candidates under 40 years of age. Applications for fellowships for the academic year 1954–1955 should be received before February 1, 1954.

Information or application forms from Frederick Osborn, Executive Vice-President, The Population Council, 230 Park Avenue, New York 17, N. Y.

Not many communicable disease control projects could have reaped such prompt and demonstratable benefits as did the cooperative state and federal campaign against murine typhus. This is a heartening and satisfying report measuring the effects of that seven-year venture.

Status of Murine Typhus Infection in Domestic Rats in the United States, 1952, and Relation to Infestation by Oriental Rat Fleas

CARL O. MOHR, NEWELL E. GOOD, AND JOSEPH H. SCHUBERT

Communicable Disease Center, Public Health Service, U. S. Department of Health, Education and Welfare, Atlanta, Ga.

DURING 1944 the number of cases of murine typhus fever reported in the United States totaled 5,338, and, judging from its steady increase since 1930, this disease gave every sign of reaching greater peaks. Two surveys, one in Coffee County, Ala.,[1] and the other in the Tampa area in Florida,[2] indicated that the number of unreported cases in the coastal and south Atlantic areas was at least double the number reported.

Because of the great number of cases and widespread occurrence (Figure 1) of this enervating disease; because of its probable increase if uncontrolled; and because of the effectiveness of the then relatively new DDT against the vector flea, a cooperative state-federal program to reduce the number of cases was begun in 1945. Ten per cent DDT in pyrophyllite was applied in these cooperative programs to burrows and runways of domestic rats. At the same time, slower, but, in the long run, more basic and lasting control measures were intensified. These were ratproofing to prevent rats from entering buildings, sanitary measures to reduce their food supply, harborage removal to disrupt their shelter, poisoning to destroy those remaining, and sharpened inspection and enforcement of ordinances to insure coordinated and effective community action.

Concurrently, with this program of control, there was begun a biological evaluation of the control methods and a study of infection among domestic rats.

PROCEDURES AND METHODS

In view of the large number of states and individual cities cooperating in obtaining these data and the span of years involved, it is inevitable that the meth-

NOTE: The following common and scientific names are used in this discussion:
Mammals
Domestic rats and mice (called feral, when living in the open away from buildings)
Roof rat, *Rattus rattus* (Linnaeus)
Norway rat, *Rattus norvegicus* (Erxleben)
Ectoparasites
Oriental rat flea, *Xenopsylla cheopis* (Rothschild)
Common rat louse, *Polyplax spinulosa* (Burmeister)
Murine Typhus Fever Organism, *Rickettsia typhi (Rickettsia prowazeki typhi* (W. and T.)[3]

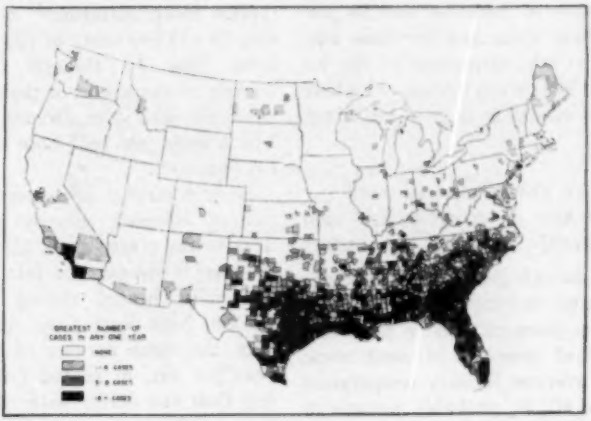

FIGURE 1—Present status of murine typhus: These represent reported cases. Those north of Virginia, Tennessee, Kentucky, Texas, and Southern California are either other diseases, generally of rickettsial nature, misidentified as murine typhus fever, or were acquired farther south. So, also, are those reported from Arizona and New Mexico.

ods used for taking sera and testing for presence of antibodies varied to some extent. In general, however, the following procedure was followed: rats were taken alive, placed in cloth bags to prevent the escape of ectoparasites, anesthetized and bled with hypodermic needle and syringe, the blood centrifuged, and the sera sent to laboratories to be tested for murine typhus antibodies by the complement-fixation method.

Rat sera from most of the states and projects were tested by the CDC Serology Unit, Chamblee, Ga., using the Bengtson test. Those from North Carolina were tested in the State Laboratory, with the exception of January–June, 1951, when these tests were made by the CDC Serology Unit. The North Carolina laboratories used the Bengtson test from 1945 through June, 1949, and the Kolmer test (at least one dilution more sensitive than the Bengtson test) with overnight fixation, from July, 1949, to December, 1952. Sera from Texas and Louisiana were tested in the respective state or city laboratories using the Kolmer test. Titers of 1:8 and higher, at a reading of 3 or 4 plus, were counted as positive in all cases except in Texas, where dilutions of 1:10, 1:20, etc., were used and those of 1:10 and higher were recorded as positive.

During the early years of this program, success in reducing infection was measured in terms of percentages of rats bearing murine typhus fever antibodies. During 1945 about 45 per cent of the rats taken were typhus-positive, but during 1946 a decline in percentages was apparent. By 1952 only 6.7 per cent of those caught were positive. The number of human cases also declined sharply; only 423 cases were reported for the year 1951. Murine typhus fever infection, though less common, remained practically as widespread in the United States in 1951 as it was in 1945.[4]

Beginning in 1951, data were assembled in such a way as to show the percentage of premises harboring typhus-positive rats, as well as the percentage of rats positive. The data on premises are recorded here for biologists and health officials interested in the

current status of infection and in primary reservoir areas, and for those who may wish to take advantage of the information to curb the disease or, where feasible, to eradicate it now or in the future.

PRESENT STATUS AMONG RATS

Typhus in rats in areas of less than 40° F. average January temperature

Typhus in rats from farm buildings—Apparently, murine typhus fever is absent from domestic rats in farm and isolated rural premises in most areas where the average January temperature is less than 40° F., probably because of the low level of infestation by Oriental rat fleas and lice. The only known exception is one in Lamb County in western Texas (Figures 2 and 3) where 29 per cent of 48 premises-sera * tested by the Kolmer method were found positive. Because this test is more sensitive than the Bengtson test, it indicates the presence of antibodies more frequently than does the Bengtson test. Its performance in indicating real presence of infection (by animal inoculation tests for presence of rickettsiae) was not tested, but murine typhus fever cases were reported from the area in question (Figure 1), chiefly from towns and cities. That it may have been present in rats on farms in the area must be considered possible.

Typhus in rats in town and city buildings—In a survey made in Illinois,[5] no positive reactions were found to complement-fixation tests for murine typhus in 68 rat sera, although the sera were taken from rats in town and city premises with the heaviest rat infestations that could be located. Particular effort was made to locate long-standing rat infestations, which experience has shown are most likely to harbor murine typhus fever organisms. It was found that 21 (17 per cent) of 122 rats caught from June 19 through October 12 (nearly at the height of the flea season) were infested with Oriental rat fleas. Thirty-eight per cent bore the common rat louse.

Several surveys of degrees of infestation of domestic rats by Oriental rat fleas in the cooler areas also show that the level is low even on rats in buildings artificially heated during winter. In Boston, New York City, and Philadelphia, the mean number of Oriental rat fleas per rat, in heated buildings, was less than one during each of more than five months and averaged less than one for the year.[6] Since one Oriental rat flea per rat is usually the complement of about 15 per cent of the rats infested, evidence is strong that, during at least five months, the percentage of rats with Oriental rat fleas is less than 15 in climatic areas represented by these cities.

*Typhus in rats in farm buildings and isolated rural premises * in the humid area of 40–45° F. average January temperature*

Data on farms and isolated rural premises † are presented for the various states in which surveys were made in 1945, 1946, 1947 (Figure 2), and 1951 and 1952 (Figure 3 and Table 1), beginning in the northwestern area and proceeding eastward. The data are somewhat biased; during the 1945–1946 period the surveys were almost cross-sectional in nature, but during the 1950–1951 period only the worst rat-infested farm premises were surveyed in most counties. The result is that the favorable reduction of typhus in rats in 1951–1952, as compared to its original status in 1945–1946, is not shown accurately. The actual reduction must have been

* By "premises-sera" is meant a premises from which one or more rat sera were successfully tested.

* Occasional isolated snack bars, restaurants, and sheds a mile or more from villages, towns, and cities.
† Excluding premises in villages, towns, and cities.

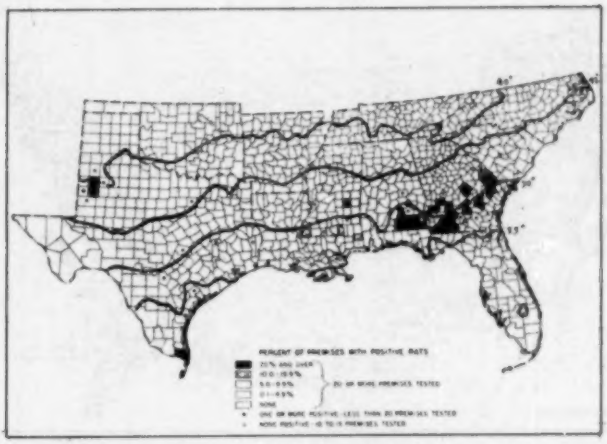

FIGURE 2—Distribution and prevalence of murine typhus infection on farms and isolated rural premises in the southern states, September, 1945–December, 1947.

much greater than that indicated in the table.

Northernmost farm and individual rural premises found with rats with murine typhus fever antibodies in this climatic area during 1945–1947, 1951, and 1952 were in Hardeman, Tarrant, and Hunt Counties, Tex.; Caddo and Ouachita Parishes, La.; Warren and Kemper Counties, Miss.; Elmore County, Ala.; Dekalb County, Ga.; and Edgefield and Lee Counties, S. C. (Figures 2 and 3). These lie within or near the area of 40°–45° F. average January temperature (coldest month of the year). They also lie within the area of 200 or more days average growing season per year (Figure 4) and high

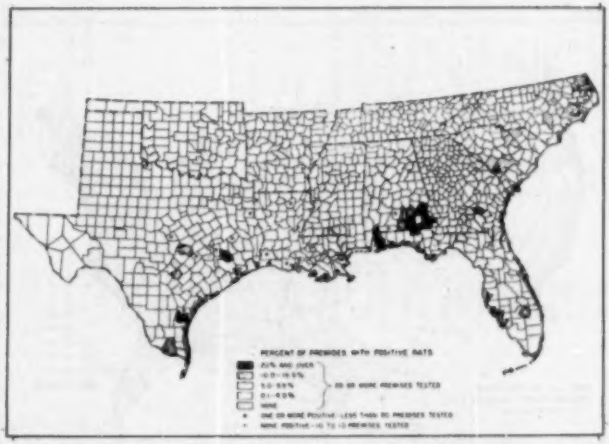

FIGURE 3—Distribution and prevalence of murine typhus infection on farms and isolated rural premises in the southern states, January, 1951–June, 1952.

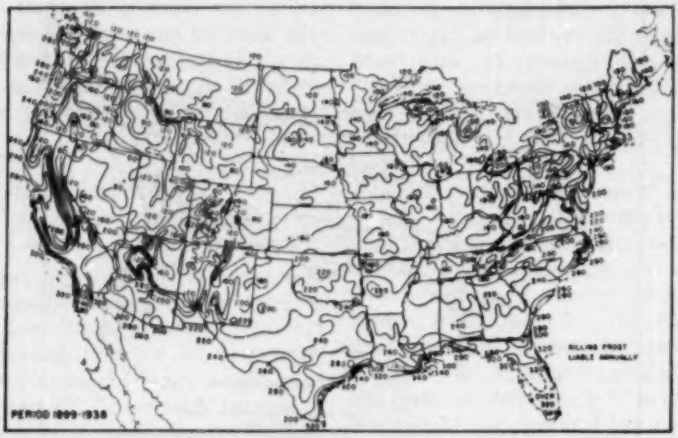

FIGURE 4—Average length of frost-free period (days).

humidity (Figure 5) which apparently is advantageous to growth of Oriental rat flea populations.

Highest incidence in farm and isolated rural premises within the 40°–45° F. area occurred in Texas. This was 22 per cent, based on 49 premises—sera tested by the Kolmer method (Table 1). Most of the counties surveyed do not, however, show a high degree of infection in farm premises; only 0–18 per cent of such premises harbored rats with murine typhus fever antibodies, based on 20 or more premises surveyed per county, one to two rat sera tested per premises, and a titer of 1:8 or higher considered positive. In Arkansas, a survey of 29 farms and isolated premises in Woodruff County in 1951, and 80 scattered through 12 other counties in

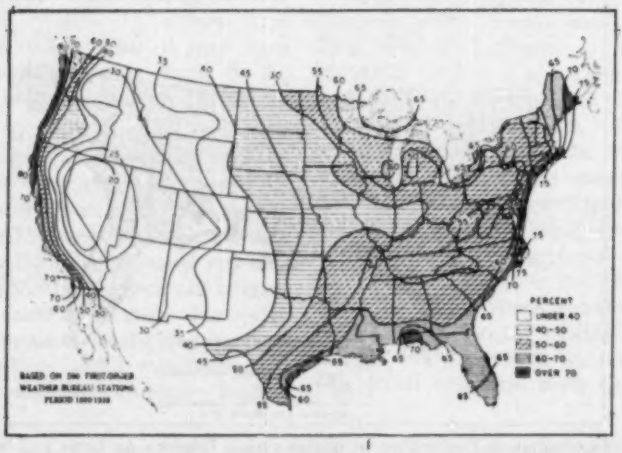

FIGURE 5—Average relative humidity, local noon, July.

TABLE 1

Number, Location, and Date of Testing of Rat-Infested Farm and Isolated Rural Premises and Percentage in Which Rats Were Found with Murine Typhus Fever Antibodies

Date of Survey and Percentage of Farms and Isolated Rural Dwellings with Rats with Sera-Positive to the Complement-Fixation Test in Titer 1-8 or Higher (except Texas) *

State	Average January Temperature Zone	September, 1945–December, 1947			January, 1951–June, 1952		
		Number of Counties Surveyed	Per cent Premises Sera-Positive	Range	Number of Counties Surveyed	Per cent Premises Sera-Positive	Range
Arkansas	35–40°	0	..	..	1	†/4 (2.0)	..
	40–45°	1	†/1 (7.0)‡	..	10	0%/80 (2.8)	..
	45–50°	0	..	..	2	†/8 (3.0)	..
North Carolina	40–45°	0	..	..	11	0%/66 (3.7)	..
	45–50°	0	..	..	6	0%/33 (2.5)	..
South Carolina	40–45°	0	..	..	4	1.5%/135 (1.6)	0%/25 (1.4)–2.3%/43 (1.4)
	45–50°	0	..	..	5	3.7%/164 (1.5)	0%/49 (1.1)–14%/36 (1.8)
Texas	35–40°	3	29%/48 (1.3)	..	2	†/10 (2.4)	..
	40–45°	3	22%/49 (1.6)	..	3	**/10 (3.2)	..
	45–50°	4	**/11 (2.2)	..	9	4.9%/243 (2.4)	0%/56 (2.2)–10%/39 (2.4)
	50–55°	7	15%/20 (2.5)	..	12	9%/169 (1.7)	0%/20 (1.3)–22%/23 (1.7)
	55–65°	6	34%/62 (1.7)	..	12	9%/397 (1.8)	0%/20 (1.4)–25%/28 (1.4)
Louisiana	45–50°	0	..	..	3	**/14 (1.1)	..
	50–55°	2	**/17 (2.3)	..	5	24%/56 (1.5)	..
Mississippi	40–45°	6	0%/53 (1.9)	..	0	..	..
	45–50°	30	5.6%/497 (1.9)	0%/23 (1.9)–17%/24 (2.1)	5	1.6%/184 (1.7)	0%/46 (1.7)–5.0%/40 (1.8)
	50–55°	2	10%/67 (1.8)	..	5	2.5%/159 (1.6)	0%/48 (1.5)–9%/22 (2.2)
Alabama	45–50°	1	**/8 (8.6)	..	8	18%/61 (2.7)	..
	50–55°	9	44%/635 (1.7)	19%/43 (1.4)–55%/42 (1.8)	10	23%/906 (2.5)	3.4%/59 (2.9)–48%/50 (1.7)
Georgia	40–45°	2	**/7 (4.7)	..	0	..	..
	45–50°	13	32%/506 (2.0)	14%/57 (1.4)–63%/30 (2.5)	2	2%/51 (1.7)	..
	50–55°	19	47%/2042 (4.8)	37%/329 (7.1)–67%/27 (1.6)	7	11%/476 (1.5)	1.5%/65 (2.6)–26%/70 (1.6)
Florida	50–55°	0	..	..	7	4.3%/184 (1.6)	0%/42 (1.6)–11%/36 (1.4)
	55–65°	1	**/15 (1.9)	..	3	5.0%/60 (1.8)	0%/25 (1.6)–13%/23 (2.0)
Total Each Zone	35–40°	3	29%/48 (1.3)	..	3	†/14 (2.3)	..
	40–45°	12	10%/110 (2.0)	0–22%	28	1.0%/291 (2.5)	0–2.3%
	45–50°	48	19%/1022 (2.0)	0–63%	40	4.7%/758 (2.0)	0–18%
	50–55°	38	45%/2781 (4.0)	19–67%	46	15%/1936 (2.0)	0–48%
	55–65°	7	34%/77 (1.7)	..	15	8.3%/457 (1.8)	0–25%

* See text.

† Less than 20 premises tested, none positive.

‡ The number following the percentage figure represents the number of premises from which rat sera were tested for murine typhus fever. The number in parentheses represents the average number of sera tested per premises.

** Less than 20 premises tested, one or more positive.

Note: The range is given in cases where 20 or more premises were surveyed in each of more than one county in zone.

this climatic area in 1951 and 1952, showed none with typhus-positive rats. The average number of rats taken was 2.2–3.5 per premises.

In the 40°–45° F. area in North Carolina, 23 farm premises in Sampson County in 1951, and 43 other counties surveyed in 1951 and 1952 also proved negative even though the sensitive Kolmer test was used.

Typhus in rats in farm buildings and isolated rural premises in the 45°–55° F. area

Relatively high percentages of the rat-infested farm and isolated rural premises in the 45°–55° F. area harbored rats with murine typhus fever antibodies in titers of 1:8 and above. This is particularly true of those from approximately the 47° isotherm southward to the 55° isotherm.

Here the degree of infestation with ectoparasites of domestic rats, chiefly the roof rat, is much like that in Grady County, Ga., in the southwestern corner of that state and in the 50° + average January temperature and 240 + days growing area, where large numbers of human cases occurred before control was undertaken. (Applications of DDT dust made in Thomas County in June and in Brooks County during all months in 1946, reduced the percentage of rats with fleas below normal.) In many of these counties, over 20 per cent of the rat-infested premises yielded rats with antibodies (Figures 2 and 3).

Almost 90 per cent of the rats taken from farm premises bore Oriental rat fleas in August, 1946, and at least 15 per cent during the most unfavorable month in the years of record. Even though a series of cool years apparently reduced the flea population in Grady County in 1947 and 1948, over 65 per cent of the rats bore Oriental rat fleas during the warmer summer months and over 60 per cent bore the common rat louse.[7, 8]

Typhus in rats in farm premises in arid areas

Westernmost localities in the eastern typhus area in which murine typhus fever cases or antibodies in rats have been found are those already discussed (Figure 2). Although human cases have been reported from New Mexico, Arizona, and the more arid parts of California, those which were investigated generally have been found to be other diseases misdiagnosed as murine typhus fever, or possibly cases acquired in the endemic areas farther southwest or southeast.

In the midwest Texas area, the infestation of rats with Oriental rat fleas is decidedly spotty, infestations being in "islands" of varying size, generally small. Most of the premises, and accordingly the rats in them, are without Oriental rat fleas. For example: only 2 per cent of all of the rats examined bore fleas as based on a cross-sectional survey, but, of 60 Norway rats trapped in 13 premises, 45 per cent bore Oriental rat fleas and the average number of fleas per rat in these premises was 2.5. This level, possibly in conjunction with other ectoparasites, is evidently sufficient to support murine typhus fever among the rats. Twelve per cent of the 469 rat sera tested for presence of murine typhus fever antibodies by the Kolmer method were positive.[9]

In making these generalizations about ectoparasite population and murine typhus fever levels at any given time and place, it is necessary to keep in mind that the average climate may, in a sense, in this case "migrate" westward or eastward for a period of years. Witness the dust bowl era in the 1930's and the return of more favorable conditions in the 1940's to the midwest Texas area and elsewhere.

The longer a climate remains favorable to ectoparasites in an area, the more likely it is that a build-up of their populations will take place and the more

likely are they to become widespread rather than "spotty."

At the time of the midwest Texas investigations, the climate was somewhat better than the average shown in Figure 5 where the 37 per cent relative humidity area appears approximately to limit the murine typhus fever westward from the large southeastern foci and also eastward from the smaller southwestern focus.

Typhus in rats in town and cities

The favorable artificial conditions created by heating and possibly by humidity in buildings occupied by man appear to favor typhus infection among rats. At least, rats with sera positive to the complement-fixation test for murine typhus fever have been found farther north and west in city premises than in farm buildings, in which they are more subject to unfavorable exposure to weather. Such positive rats have been found in town or city premises in Durant, Okla.[10]; Kansas City, Mo.[11]; Bowling Green, Ky.; Nashvile, Tenn.[12]; Washington, D. C., and Baltimore, Md.[13] They also have been found as far west in arid climates as Amarillo and El Paso, Tex.[14]

Generally, the deeper these foci are in the cooler or more arid climates, the smaller is the number of buildings with infected rats, the smaller the area with infected rats, and the less stable the focus of infection. Those places which do have infection in towns and cities in the cooler and more arid zones are generally those having large and extensive rat colonies which have existed over many years. Eradication of typhus is, accordingly, relatively easy in such areas and, once it is accomplished, the disease is not as likely to be re-established as in premises in warm and humid areas because there is no extensive reservoir in the surrounding countryside.

Very great reduction, and in some cases apparent eradication, has been accomplished in a number of cities, even in the more southern sections of the United States. Human typhus cases have not been reported recently from Kansas City or Memphis. Few are reported from the Little Rock area; whereas formerly the number was great.

In Corpus Christi, Tex., in 1951, 304 premises which were most likely to have rats were inspected in a survey designed to determine whether or not rats with murine typhus fever antibodies were present.[15] Rats were found in only 14 of the premises. Rats were caught and their sera tested in 11 of these premises. None was found positive to the complement-fixation test for murine typhus fever; whereas in 1946, when 20,453 premises were surveyed, 72 to 87 per cent of various types of business buildings were found to be infested by rats, and about 1 per cent of the food-handling establishments were found with rats with typhus antibodies. The authors conclude that although "it is questionable that typhus in rats is completely absent in Corpus Christi in 1951, no antibodies could be recovered."

In Mobile, Ala., in 1951, traps were set in buildings in which rats were known to occur or in which some degree of infestation was suspected. One hundred and thirty-eight rats were obtained; none was positive to the complement-fixation test for murine typhus fever.[16] A similar program in Birmingham yielded 298 rats; none was positive.[16] As in Corpus Christi, before the murine typhus fever control program was initiated, rats with sera positive to the complement-fixation test had been widely distributed in both of these cities.

Several foci still existed in some cities in 1951. Most of these were in the warm humid areas of the southeast and southwest. A localized outbreak occurred in the residential district of Altadena in Los Angeles County, Calif., attesting to the persistence of the dis-

ease among rats in the warm and humid areas.[17]

Cases still occur in the area of Nashville, Tenn., apparently associated with foci from several mills.

CONCLUSIONS

Murine typhus fever in the United States is widespread among domestic rats on farms and isolated rural premises in the area where the average January temperature is 47° F. or higher and the humidity high. It was also originally common in this area in villages, towns, and cities but, because of cooperative state-federal typhus control programs, it has been eliminated from many. It is spottily distributed on farms in and near the 40°–45° F. area and unknown north of it, although any typhus eradication program would have to be based on the thesis that any large farm, stockyard, mill, or similar premises with long-standing rat and rat ectoparasite infestation, *might harbor* typhus infection particularly if close to the 40° F. area.

Typhus in rats apparently is not so widespread on farms in central and southern Florida because of considerable midwinter aridity there. Nevertheless, a typhus eradication program would require control on farms as well as in villages, towns, and cities. The Los Angeles area in California is similar.

Typhus occurs considerably farther north in villages, towns, and cities than on farms and in individual rural premises due to artificial heating in the town and city buildings. However, it is relatively easy to eradicate in such areas because it is present in a low percentage of premises and more subject to organized control. The farther into the cooler and more arid climates the smaller the foci, the more widely scattered, the less stable, and the more easily controlled.

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Even though histoplasmosis seems to be an infectious disease at present restricted to limited areas of our country, and blastomycosis a disease still more firmly hemmed in, there are conditions about which those of us, who are happily outside the present boundaries of their spread, need to know all we can learn about them.

Incidence of Tuberculin, Histoplasmin, and Blastomycin Reactors Among a Group of School Children

MICHAEL L. FURCOLOW, M.D., F.A.P.H.A., JAN SCHWARZ, M.D., BARBARA A. HEWELL, M.D., AND J. THOMAS GRAYSTON, M.D.

Communicable Disease Center, PHS, University of Kansas Medical Center; Departments of Dermatology and Pathology, University of Cincinnati College of Medicine and the Clinical Laboratories of the Jewish Hospital; Department of Internal Medicine, University of Cincinnati College of Medicine, Cincinnati, Ohio; and Communicable Disease Center, PHS, University of Kansas Medical Center, Kansas City, Kans.

SINCE no recent survey of tuberculin sensitivity had been made, and since there was no comprehensive study of histoplasmin sensitivity by age in school children in the area of Cincinnati, Ohio, it was felt that current information on the prevalence of sensitivity to these antigens would be of interest. Cincinnati has been shown to be in an area where histoplasmin sensitivity is extremely high.[1, 2] Indeed, it appears to be on the northeastern border of the high area, as sensitivity has been demonstrated to decrease both to the north and to the east.

The recent report of 12 cases of blastomycosis from Cincinnati makes this city one of the centers of the disease so far as reported cases are concerned.[3] The exact incidence of this disease and its importance as a clinical and epidemiological problem remain to be defined. The most pressing question relates to the prevalence of the infection. Is it a rare and usually fatal disease, or does it, like coccidioidomycosis and histoplasmosis, occur also as an extremely common primary type of infection? One way of determining the possibility of the occurrence of widespread infection would be to do skin tests with blastomycin. For this reason skin tests with this antigen were also performed.

The present paper reports the skin test reactions to tuberculin, histoplasmin, and blastomycin in 7,194 school children between the ages of 5 and 19 years in Hamilton County, Ohio.

MATERIAL AND METHOD

The study was carried out between May 5 and May 15, 1952. Tuberculin, histoplasmin and blastomycin tests were done simultaneously by intradermal injection of 0.1 ml. of the appropriate antigen. The tuberculin and blastomycin tests were made at points widely separated on the left forearm and the

histoplasmin test on the right forearm. The tests were performed by teams of experienced individuals, each giving one injection to avoid any confusion in the antigens. The readings were made 48 hours after injection by four physicians with long experience in skin testing. The transverse diameter of edema and erythema was measured and recorded for each test. Reactions in which the area of induration measured 5 mm., or more, in transverse diameter at 48 hours after injection were considered to be positive.

The tuberculin employed was Purified Protein Derivative (PPD-S), furnished by Dr. Florence B. Seibert of the Henry Phipps Institute of Philadelphia, Pa. A dose of 0.0001 mg. was employed. The histoplasmin (Lot HKC-5) was prepared and titrated by the method of Shaw, Howell, and Weiss.[4] It was employed in a dilution of 2:1,000. The blastomycin (Lot B-7) was furnished by Dr. Arden Howell of the Public Health Service. This material had been standardized on infected guinea pigs[5] and was employed in a dilution of 1:1,000.

Skin tests were given and read on a total of 7,582 persons in 15 grade and high schools in the Cincinnati area. Of these, 191 were white adults and 197 were Negro children. Both these groups were excluded from the analysis. About 90 per cent of the school population of the 15 schools accepted the tests, the percentage reaching 98 in some schools.

In addition to the skin testing, a 70 mm. x-ray of the chest by portable x-ray units was obtained on each individual. Retakes on 14 x 17 films were made when indicated. The Tuberculosis Division of the Ohio State Department of Health and the Anti-Tuberculosis League of Cincinnati provided the staff and x-ray units for this part of the survey. Reports of the skin tests and x-ray findings were sent to parents and physicians.

In the analysis of the results, only those who had lived 80 per cent, or more, of their lives in Cincinnati or Hamilton County were considered as lifetime residents. All others were considered as nonlifetime residents.

The 6 communities selected for the survey are areas in Hamilton County, adjacent to the City of Cincinnati. It was thought that the more suburban areas were preferable from the point of view of permanence of residence, compared to the downtown areas of the city where there is a rapid change in school population. However, the city areas were represented by the City of Norwood. This is a residential and industrial area with a population of over 50,000 which is completely enclosed by the City of Cincinnati. The population is composed mostly of industrial workers.

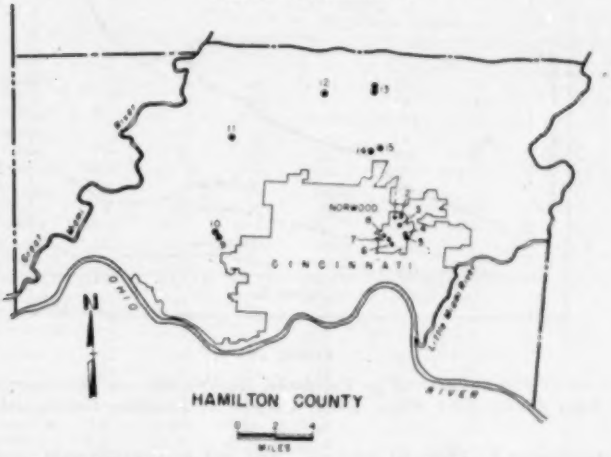
Figure 1 shows the location of the 15 different schools in Hamilton County, Ohio. There were 10 public and 5 parochial schools included in the survey. Bridgetown and Colerain are semirural residential areas. The Village of Greenhills is a housing development located in a rural area. The Village of Glendale is a residential area in a rural section, while the Village of Wyoming is largely residential, but adjoins industrial areas of Cincinnati. Both Glendale and Wyoming are, in general, suburban residential areas of high economic level. As shown on the map, none of the communities are located on the Ohio or Little Miami Rivers.

RESULTS

In Table 1 and Figure 2 are shown the number and per cent of positive reactors to tuberculin, histoplasmin, and blastomycin among the 7,194 white children tested in the 15 schools. One of the most striking findings evident from the study of these data is the low rate of reaction to tuberculin. It is seen that the rate rises slowly from less than 1 per cent at age 5 to about 5 per

FIGURE 1

Map of Hamilton County, Ohio, Showing Location of Schools Where Tests Were Conducted



1. Norwood View
2. St. Peter and Paul
3. North Norwood
4. St. Matthew
5. Sharpsburg
6. Williams Avenue
7. Allison Avenue
8. St. Elizabeth
9. Bridgetown
10. St. Aloysius
11. Colerain
12. Greenhills
13. Glendale
14. St. James
15. Wyoming

cent at age 13. It continues at about this level through age 18. The fact that only 10 persons were tested in the 19-year-old group makes the higher rate in this group of no significance. It is impressive, however, that little more than 5 per cent of the children aged 13–18 reacted to tuberculin. It is interesting to note that the over-all rate among the 197 Negro children tested was 14.2 per cent, compared with the rate of 3 per cent among white children.

The histoplasmin rates in Hamilton County are extremely high, as shown in

TABLE 1

Number and Per cent Positive Reactors to Tuberculin, Histoplasmin, and Blastomycin Among 7,194 White School Children in Hamilton County, Ohio

		Age Nearest Birthday															
		5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	Total
Number Tested		270	643	776	727	858	781	763	607	669	463	237	160	140	90	10	7,194
		Tuberculin															
Pos.	Number	2	12	8	12	16	23	30	19	32	28	13	10	6	4	1	216
	Per cent	0.7	1.9	1.0	1.7	1.9	2.9	3.9	3.1	4.8	6.1	5.5	6.3	4.3	4.4	10.0	3.0
		Histoplasmin															
Pos.	Number	41	119	170	187	290	283	299	262	333	245	148	93	92	72	8	2,642
	Per cent	15.2	18.5	21.9	25.7	33.8	36.2	39.2	43.2	49.8	52.9	62.5	58.1	65.7	80.0	80.0	36.7
		Blastomycin															
Pos.	Number	12	22	51	61	91	86	111	91	123	88	53	32	28	23	3	875
	Per cent	4.4	3.4	6.6	8.4	10.6	11.0	14.5	15.0	18.4	19.0	22.4	20.0	20.0	25.5	30.0	12.2

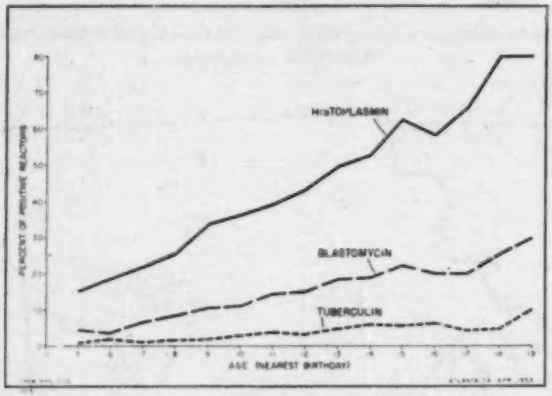


FIGURE 2

Per cent of Positive Reactors to Tuberculin, Histoplasmin, and Blastomycin Skin Tests Among 7,194 White School Children in Hamilton County, Ohio

Table 1 and Figure 2. Over 20 per cent are positive to this test by the age of 7 years and 80 per cent are positive by age 18. As in other studies,[2] the rate among males was slightly higher than among females (38 as compared with 33 per cent).

The percentage of positive blastomycin reactors was 12.2. However, there were essentially no positive blastomycin reactors among children who did not react also to histoplasmin. One-third (33 per cent) of the histoplasmin reactors gave a positive reaction to blastomycin. The blastomycin reactions were smaller than the histoplasmin reactions in 97 per cent of the children. Only one child reacted to blastomycin and not to histoplasmin, and this child could not be retested.

The relationship of the size of the blastomycin and the histoplasmin tests in the same children is shown in Table 2. This table emphasizes the consistent finding that the histoplasmin reaction was almost always larger than the blastomycin reaction in the same child. Of the 1,164 children who showed some reaction to blastomycin only 38 (3.3 per cent) showed reactions to blastomycin larger than to histoplasmin, and of these the greatest difference was 6–8 mm. which occurred in 2 children. Of the 875 blastomycin reactors showing a positive reaction, all but 11 (1.3 per cent) showed larger reactions to histoplasmin.

TABLE 2

Comparison of the Size (in mm.) of the Histoplasmin and Blastomycin Reactions in the Same Child

Blastomycin Size in mm.	*Histoplasmin (Size in mm.)*						
	0	*1–4*	*5–10*	*11–14*	*15–20*	*21 or over*	*Total*
0	4,413	91	550	636	287	23	6,030
1– 4	27	21	68	112	56	5	289
5–10	1		82	351	183	29	646
11–14			2	71	93	10	176
15–20				8	34	10	52
21 or over						1	1
Total	4,441	112	732	1,178	653	78	7,194

TABLE 3

Number and Per cent of Positive Reactors to Histoplasmin Among "Lifetime" Residents of Specified Schools in Hamilton County, Ohio

School Number			Age Nearest Birthday								
			5–6	7–8	9–10	11–12	13–14	15–16	17–18	19	Total
1.	Number	Positive	13	19	24	31	31	3			121
		Tested	88	72	80	74	46	8			368
	Per cent	Positive	14.8	26.4	30.0	41.9	67.4	37.5			32.9
2.	Number	Positive	3	17	17	19	19	2			77
		Tested	20	87	80	71	53	6			317
	Per cent	Positive	15.0	19.5	21.3	26.8	35.9	33.3			24.3
3.	Number	Positive	13	11	29	30	35	4			122
		Tested	57	68	71	69	61	7			333
	Per cent	Positive	22.8	16.2	40.9	43.5	57.4	57.1			36.6
4.	Number	Positive	3	27	27	29	28	6			120
		Tested	17	92	79	74	64	6			332
	Per cent	Positive	17.7	29.3	34.2	39.2	43.7	100.0			36.1
5.	Number	Positive	20	14	27	29	22	3			115
		Tested	68	52	79	49	41	4			293
	Per cent	Positive	29.4	26.9	34.2	59.2	53.7	75.0			39.3
6.	Number	Positive	11	33	27	35	40	6			155
		Tested	58	93	74	68	65	10			368
	Per cent	Positive	19.0	35.5	36.5	55.9	61.5	60.0			42.1
7.	Number	Positive	12	17	37	34	26	1			127
		Tested	41	62	85	65	41	2			296
	Per cent	Positive	29.3	27.4	43.5	52.3	63.4	50.0			42.9
8.	Number	Positive	8	9	31	34	28	7			117
		Tested	66	99	108	88	71	8			440
	Per cent	Positive	12.1	9.1	28.7	38.6	39.4	87.5			26.6
9.	Number	Positive	17	9	28	25	19	4			102
		Tested	99	54	75	65	44	5			342
	Per cent	Positive	17.2	16.7	37.3	38.5	43.2	80.0			29.8
10.	Number	Positive	6	13	37	28	39	1			124
		Tested	18	103	129	89	83	2			424
	Per cent	Positive	33.3	12.6	28.7	31.5	47.0	50.0			29.3
11.	Number	Positive	13	44	84	57	64	70	58	2	392
		Tested	78	147	169	120	118	100	70	3	805
	Per cent	Positive	16.7	29.9	49.7	47.5	54.2	70.0	82.9	66.7	48.7
12.	Number	Positive	9	28	40	49	35	33	18	1	213
		Tested	96	124	141	107	69	57	29	1	624
	Per cent	Positive	9.4	22.6	28.4	45.8	50.7	57.9	62.1	100.0	34.1
13.	Number	Positive	2	27	23	37	24	23	22	1	159
		Tested	9	79	65	79	44	41	28	1	346
	Per cent	Positive	22.2	34.2	35.4	46.8	54.5	56.1	78.6	100.0	45.9
14.	Number	Positive	1	7	14	15	12	1			50
		Tested	13	74	60	64	36	1			248
	Per cent	Positive	7.7	9.5	23.3	23.4	33.3	100.0			20.2
15.	Number	Positive	13	10	18	21	24	21	22		129
		Tested	76	65	76	68	61	41	35		422
	Per cent	Positive	17.1	15.4	23.7	30.9	39.3	51.2	62.9		30.6
Total	Number	Positive	144	285	463	476	446	185	120	4	2,123
		Tested	804	1,271	1,371	1,150	897	298	162	5	5,958
	Per Cent	Positive	17.9	22.4	33.8	41.4	49.7	62.1	74.1	80.0	35.6

Comparison of the rates of reaction between lifetime and nonlifetime residents of Hamilton County reveals that the lifetime residents showed 35.6 per cent positive to histoplasmin while the nonlifetime residents showed 42.0 per cent positive. This finding that nonlifetime residents show a somewhat higher rate of reaction than lifetime residents was also observed in Kansas City.[6]

Variation in skin test rates in different schools — Considerable differences in rates of reaction were found in the various schools.

The rates of reaction to histoplasmin by age for each of the 15 schools are shown in Table 3. For the purpose of

this comparison only lifetime residents of each school were considered. Quite marked variations in over-all sensitivity rates are evident as the rates for various schools vary from 20 to 43 per cent even in schools where the same age groups were studied. The rate for all of the 5,958 lifetime residents was found to be 35.6 per cent.

For purposes of comparison of the different schools, it is possible to construct theoretical annual conversion rates, assuming such rates to be constant, by a modification * of the method of Manos.[7] These rates give an estimate of the yearly rate at which persons are being infected among the population under study or the yearly rate at which persons negative to the histoplasmin skin test "convert" to a positive skin test. This method simplifies comparison of the schools, since each school can be represented by a single "conversion" rate. The annual "conversion" rates for the 15 schools are seen below:

School	*Location*	*Annual Conversion Rate with Standard Error*
1. Norwood View	Norwood	7.5 ± 1.8
2. St. Peter and Paul	"	3.0 ± 0.5
3. North Norwood	"	7.3 ± 2.1
4. St. Matthew	"	4.3 ± 0.5
5. Sharpsburg	"	6.3 ± 2.2
6. Williams Ave.	"	8.8 ± 1.2
7. Allison Ave.	"	7.8 ± 1.6
8. St. Elizabeth	"	6.8 ± 2.2
9. Bridgetown	W. Central	5.8 ± 1.5
10. St. Aloysius	"	6.1 ± 2.0
11. Colerain	Northwest	10.0 ± 1.2
12. Greenhills	North	7.5 ± 0.5
13. Glendale	"	7.4 ± 1.3
14. St. James	"	4.3 ± 0.9
15. Wyoming	"	5.0 ± 1.0

It is seen that the lowest rates occur in schools 2, 4 and 14, all of which are parochial schools. The rates vary from 3.0 to 4.3 in these 3 schools. The two other parochial schools (8 and 10) also show fairly low rates, 6.8 and 6.1, respectively. It is interesting to note that although three of the lowest schools (2, 4 and 8) occur in the City of Norwood, the school with the second highest rate observed (6), also is in Norwood, as is the third highest (7). The school with the highest rate (11) was a rural centralized school. The remaining schools showed rates intermediate between the highest and the lowest. It is interesting to note that public and parochial schools which were adjacent (9 and 10, 14 and 15) showed almost the same rates.

The percentage of children positive to the tuberculin test varied for the different schools from 0.7 per cent positive to 5.4 per cent positive. The highest percentage of positive reactors (5.4, 5.2, 4.5, and 4.1) all occurred in Norwood (schools 7, 3, 1, and 4) probably reflecting the industrial crowding in this city. The lowest percentage of positive reactors (0.7 per cent) was found in school 14, a suburban parochial school.

DISCUSSION

The three-fold purpose of this survey was to define the tuberculin, histoplasmin, and blastomycin rates in the Cincinnati area. While the tuberculin rates are, in general, low and reflect credit upon the control program in the area, the rates among Negroes and in industrial communities still are high compared to the other areas surveyed. The establishment of these basic tuberculin rates by age for the Cincinnati area should present a useful tool for physicians in attempting to evaluate the results of a positive tuberculin test on any individual child. It is obvious that the previous concept that most persons are positive to tuberculin is erroneous, especially as far as children are con-

* This modification weights the original observations proportionally to $\frac{n}{p(1-p)}$ rather than weighting their logarithms by $\frac{n(1-p)}{p}$. It was adapted by Myron J. Willis of the Communicable Disease Center, Public Health Service, to whom the authors express their appreciation.

cerned. Data on the prevalence of tuberculin sensitivity by age, done with standardized tuberculin, are of great importance in evaluating the tuberculosis problem. The rates of reaction presented herein for Hamilton County are directly comparable to those for Kansas City,[6] since the same tuberculin was employed. For comparison with Kansas City the children of Norwood were considered together as representing an urban area, surrounded by the City of Cincinnati. The rates by age for Norwood are almost the same as the rates for similar aged children in Kansas City. The tuberculin rates for the combined suburban schools, exclusive of Norwood, are, however, about half those found in the Norwood and Kansas City areas. Tuberculin rates in urban areas are usually higher than in rural areas; hence this finding was not unexpected.

In contrast to the relative infrequency of tuberculin reactors in the survey schools, histoplasmin reactors occurred frequently. Children 5 years of age showed a rate of 15 per cent. The rate rose steadily, to reach a high of 80 per cent positive at age 18. This rate curve is similar to that of Kansas City,[6] but a little lower.

The importance to physicians of the finding of the very high histoplasmin rate in the area is obvious. It is apparent that consideration of fungus etiology should enter into the diagnosis of any lung lesions in young children, especially if there is a poor response to antibiotic therapy. Also, since the rates among apparently normal school children are so high, the value of the skin test as an indicator of active disease is decreased. Serological tests are the best indicators of activity.

Perhaps the most important finding of the survey relates to the blastomycin reactors. One of the most interesting questions relative to blastomycosis is whether this disease is a rare, usually fatal disease, or whether widespread primary infections occur, of which the disseminated fatal disease is a rare complication. The latter condition has been found to exist with both coccidioidomycosis and histoplasmosis, once regarded as rare and fatal diseases, now as widespread and relatively benign infections. The occurrence of fatal cases of blastomycosis in Cincinnati made this an area where these possibilities could be tested, assuming that the organism produces skin sensitivity as readily as the other two fungi. It was necessary to have a specific skin testing material and to employ it at specific titer.[5] The blastomycin used was prepared and titered in the same manner as the histoplasmin antigen. Based on the previous work with Coccidioides and Histoplasma, one would expect that if Blastomyces, were prevalent, a large number of persons would react to blastomycin, and that the individual reactions to blastomycin would be larger than to histoplasmin. Actually, just the reverse was observed; reactions to blastomycin occurred in only 12 per cent; whereas 33 per cent reacted to histoplasmin. Only one-third of the histoplasmin reactors also reacted to blastomycin. Only one person reacted to blastomycin who failed to react also to histoplasmin. The size of the reactions to blastomycin was almost always smaller than the size of the reactions to histoplasmin. These findings point to the conclusion that blastomycin reactions are cross-reactions rather than specific reactions. Cross-reactions between histoplasmin and blastomycin have been demonstrated in animals and man.[5, 8] In the case of experimentally infected animals, reactions to the specific antigen were frequent and large; whereas cross-reactions or reactions to the heterologous antigen were less frequent (from 12 to 16 per cent) and smaller in size. These findings parallel those of the present survey where 12 per cent of blastomycin reactions were observed. Murphy[9] has

reported that a "majority" of 31 blastomycin reactors observed in North Carolina reacted to histoplasmin, usually with a reaction of over 10 mm. of induration.

There are several possible interpretations of these data. Among these is the assumption that the blastomycin is not specific for Blastomyces infection. It must be stated, however, that the methods of standardization were the same as for histoplasmin, the specificity of which is widely acepted. Another assumption is that Blastomyces infection does not sensitize as readily as Histoplasma or Coccidioides, and hence the skin reactions would fail to occur even if the antigen was specific. Some evidence suggesting this is found in the case reports of blastomycosis, since all cases have not reacted to blastomycin.[10, 11] Still another assumption is that blastomycosis, unlike histoplasmosis and coccidioidomycosis, does not exist as a widespread mild infection; but that infection with this fungus is infrequent, serious, and often fatal. Against this hypothesis is the parallelism between the course and history of these three systemic mycoses. The existence of a common antigen has been commented upon; the frequency of animal cases and of lung infection in cases of Blastomyces parallels that with the other two fungi. The growth and appearance of the organism in ordinary laboratory media are quite similar to Histoplasma, and the temperature and humidity requirements for growth of both organisms are similar. Also, Blastomyces will grow on bark or soil in the laboratory.[12]

In view of the limitations mentioned above, it is not possible to rule out the existence of subclinical forms of blastomycosis by these studies. Certainly, however, no evidence was found to support the existence of widespread infection. Further studies of the problem are urgently needed. There appears to be no doubt that cases of blastomycosis frequently occur in Cincinnati,[3] Lexington, Ky.,[13] and around Durham, N. C.;[9] yet prolonged search in the Kansas City area has failed to reveal a single case, even though both histoplasmin and blastomycin rates are quite similar to those found in Cincinnati.[14]

SUMMARY

The skin reactions to tuberculin, histoplasmin, and blastomycin of 7,194 school children in the Cincinnati, Ohio, area are reported.

1. The tuberculin rate was low, 3 per cent for the entire group of white children, with variation by age from less than 1 per cent at 5 years to 6 per cent at 14 years of age.

2. The rate of histoplasmin reactors was high, increasing with age from 15 per cent at 5 years to 80 per cent at 18 years. There was considerable variation in histoplasmin sensitivity, both within and between the different communities.

3. The rate of reaction to blastomycin is about one-third the rate of reaction to histoplasmin. With one exception, positive blastomycin reactions were found only in the presence of positive histoplasmin reactions. It appears from these findings that the blastomycin reactions are cross-reactions.

4. The implications of these findings in the epidemiology of blastomycosis are discussed.

ACKNOWLEDGMENT — The authors wish to acknowledge the cooperation of the Ohio State Department of Health; the Boards of Health of Cincinnati, Hamilton County, and the City of Norwood; the staff and Board of the Anti-Tuberculosis League of Cincinnati; the school authorities of the public and parochial schools; the teachers; schools; community and county public health nurses; and the Parent-Teachers Associations of the different schools. Special acknowledgment is made to Dr. David Heusinkveld and Blanche Miller, Anti-Tuberculosis League of Cincinnati; Dr. Fred Wentworth, chief, and Mrs. Orsburn, Division of Communicable Disease; Dr. Ralph Dworck, chief, Division of Tuberculosis Control, Ohio State Department of Health; Dr. Herbert O'Hara, Lima, Peru; and Dr. Salvador Adriano, Manila, Philippines.

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New Korean School of Public Health

The first School of Public Health in Korea was opened on September 28 with 20 physicians enrolled. A severe shortage of qualified public health personnel is judged the immediate problem confronting public health officials in Korea. There is at present only a small number of trained Korean public health personnel—most of them trained in the United States from 1945 through 1950. The initial activity of the school is a basic three-month training course for a maximum number of students, with advanced graduate courses leading to a degree in public health to follow next year. The faculty consists of 25 Korean medical men, assisted by 20 United Nations specialists, most of whom are U. S. Army medical personnel on duty in Korea. Dr. Han Pum Sak, a graduate of the University of Michican Schcol of Public Health, has been appointed acting dean of the school.

The school is the result of cooperative action by several organizations and public health leaders. A World Health Organization team of experts recommended establishment of such a school; the American-Korean Foundation Mission provided the funds, contributed by the Monsanto Chemical Company; the Harvard University School of Public Health participated in the preparation of the curriculum and collection of textbooks and other teaching materials which were flown to Korea; the school has been organized as a unit of the Seoul National University in conjunction with the Ministry of Health; full technical assistance of the R. O. K. Army Medical Field Service School faculty and of the U. S. Eighth Army Surgeon's office have been made available. Among the individuals who have taken leadership in formation of the school are Dr. Choi Chai Yu, Korean minister of health; Col. James P. Pappas, M.C., U. S. Army, chief of public health, Korean Civil Assistance Command; Howard A. Rusk, M.D., head of the second American-Korean Foundation Mission; and James Steven Simmons, M.D., dean, Harvard University School of Public Health.

In summer and fall months the Coxsackie viruses may frequently be recovered from municipal sewage treatment plants when laboratory methods described here are employed.

Detection and Occurrence of Coxsackie Viruses in Sewage*†

SALLY M. KELLY, PH.D.

Division of Laboratories and Research, New York State Department of Health, Albany, N. Y.

SEWAGE and water supplies, long recognized as vehicles for bacterial agents of disease, are now under suspicion as carriers of viruses as well. The virus of poliomyelitis, for example, has been isolated from sewage [1-5] and from water [6]; hepatitis virus in the water supply has been indicted as the cause of outbreaks [7]; and Coxsackie virus recoveries from sewage have been reported.[8, 9] These observations raise the questions: how frequently do viruses occur in sewage and water during normal times, and how well, if at all, do they survive standard water sanitation practices? Such information can best be obtained by the use of a simple, rapid, sensitive, and safe method for detecting viruses. This report presents such a method and the results of testing under field conditions.

The method, in brief, consists of virus adsorption on, and elution from, ion-exchange resins. While Amberlite (Rohm and Haas Company) ion-exchange resins have been used previously to purify,[10] and also to concentrate virus preparations from infected tissue suspensions,[11-13] the procedures to be described employ other resin types and illustrate their use in recovering viruses that occur in sewage in amounts undetectable without special treatment.

DETECTION

A preliminary survey of methods that might be adapted to virus detection in water, including protamine, calcium phosphate, and zinc glycine precipitation, ion-exchange, and Sharples centrifugation, indicated that ion-exchange technics possessed peculiar advantages. Conditions for optimum virus recovery from sewage using ion-exchange resins were determined, therefore, for Theiler (T.O.) virus and *Escherichia coli* B bacteriophage. The better methods were then tested with strains of Coxsackie viruses. The procedure described below was found most satisfactory for detecting unknown strains of Coxsackie viruses in sewage.

To sewage samples, 60–100 ml. in volume, 30 per cent solution of bovine albumin (Armour) was added to give a final albumin concentration of 0.5 per cent. Dowex 1 resin, 200–400 mesh, 10 per cent cross-linkage, was added to the sewage in the proportion of 10 gm. per 100 ml. of sewage, and mixed for 3–4 minutes. The suspension was centrifuged at 2,500 r.p.m. for 10 minutes and the supernate discarded. To the sedimented resin was added 1 or 2 ml.

* Presented before a Joint Session of the Coordinating Committee on Laboratory Methods and the Laboratory Section at the Eighty-first Annual Meeting of the American Public Health Association in New York, N. Y., November 11, 1953.

† This investigation was supported by a research grant from the National Institutes of Health, Public Health Service.

TABLE 1

Recovery of Theiler Virus on Ion-Exchange Resins (Volumes of the Various Fractions Are the Same for Any One Set of Resin Data)

A. Fraction	M.E.D.* (neg. log)				
	Dowex 1 10 per cent			XE-67B	Nalco SAR
	(1)	(2) †	(3) †		
Original suspension	6.0	7.3	6.1	6.3	6.2
Supernate	3.7			<3	<2
Wash	2.0			<2	
Eluate	6.6	8.9	7.7	5.6	4.8

B. Fraction	Infected/total animals					
	Dowex 1 2 per cent	XE-64	Nalco		Dowex	
			HCR	SAR	50	1
Original suspension 10^{-5}	5/5		8/8	8/8		
Supernate 10^{-2}		8/8	3/3	6/8	7/8	1/7
Eluate undiluted	1/8	9/9	0/8	7/7	0/8	8/8

* M.E.D. determined by the Thompson method of moving averages [14]

† Suspensions first passed through bead-size resins, Amberlites IR-120, and IRA-410, and adsorbed on Dowex 1 twice

of 10 per cent disodium phosphate ($Na_2HPO_4 \cdot 12H_2O$), the phosphate and resin mixed for 5–10 minutes, and the mixture centrifuged at 3,000 r.p.m. for 15 minutes. The eluate was drawn off, saved, and treated with antibiotics, 500 units of penicillin and 2½ mg. of streptomycin per ml. of eluate. These preparations were kept for convenience at 8°–10° C. overnight before being injected intraperitoneally and subcutaneously into the test animals, one- and two-day-old mice of the Albany standard strain. The development of limb paralysis or spasticity during a two-week observation period was taken as presumptive evidence of the presence of Coxsackie virus. Confirmation was made by passage of brain or leg material from such infected mice into healthy suckling mice and by its failure to induce evident disease in older (10–12 gm.) mice inoculated intracerebrally. Microscopic examination for typical lesions was also carried out. Serologic identification of many of the isolations was made by neutralization test with antisera from known strains of Coxsackie viruses.

Among the conditions found to influence virus recovery from sewage, were the following:

Resin Choice

Experiments with concentrated tissue suspensions and with dilute water and sewage suspensions of Theiler-virus-infected mouse brain indicate that of the resins tested, Dowex 1, 10 per cent cross-linkage, 200–400 mesh, is most satisfactory for virus recovery (Table 1). By preliminary passage of virus suspensions through bead-size resins, Amberlites IR-120 and IRA-410, and readsorption on the fine-particled resin as recommended by Lo Grippo and Berger,[12] recovery of virus was enhanced. Amberlite XE-67B, an anionic-exchange resin (as is Dowex 1) adsorbs Theiler virus; the yields, however, are not so quantitative as with Dowex 1, nor can the resin-sewage suspensions be transferred so cleanly from one vessel to another. The cationic-exchange resins, Amberlite XE-64 and Dowex 50, do not adsorb Theiler virus quantitatively from tissue suspensions. The Nalcite resins, SAR and HCR, similar to Dowex 1 and 50, respectively, only of larger particle

TABLE 2

Albumin Effect on Theiler Virus Recovery on Ion-Exchange Resins

Fraction		Infected/total animals				M.E.D. (neg. log)			
		Amberlite XE-67B		Dowex 1		Dowex 1			
		Albumin Absent	Albumin Present	Albumin Absent	Albumin Present	Vol. (ml.)	Albumin Absent	Egg Albumen	Bovine Albumin
Original suspension	10^{-5}	7/10	6/8	7/8	8/8	50	7.9	7.9	7.9
Eluate	undiluted	0/8	3/8	0/8	7/8	1	1.0	8.2	7.2

size, when ground to 200–400 mesh size, adsorb Theiler virus according to their corresponding Dowex resins. Dowex 1 resin, 2 per cent cross-linkage, does not adsorb satisfactorily.

Albumin Concentration

While the addition of albumin is not necessary for adsorption of virus from concentrated tissue suspensions, virus in dilute water or sewage suspensions is not recovered unless albumin is added (Table 2). This technic of protein addition was used successfully by Gard [15] in detecting poliomyelitis virus by ammonium sulfate precipitation. Recovery is equally good when the source is 30 per cent bovine albumin solution, powdered bovine albumin, or egg albumen. The final albumin concentration is not critical, 0.1–2.0 per cent giving similar recoveries.

Sewage Sample

When sewage samples for analysis are taken at one time or at stated intervals, as they frequently are, the sample is representative only of the sewage taken at that instant. Although this time limitation may not be important in certain analyses, it should not be ignored in the detection of agents whose presence in sewage may be intermittent, such as the Coxsackie viruses. Twenty-four and 48-hour sewage samples, collected as described below, therefore, were compared for their Coxsackie-virus content with catch sewage samples taken either at the beginning or end of the 24- to 48-hour period. The 24- to 48-hour samples were obtained by exposing cheesecloth swabs to the flow of sewage for the desired time and expressing the liquid. This swab procedure is essentially the same as that originated by Moore [16] and used successfully in locating typhoid carriers [17] and sources of poliomyelitis virus.[18] Such swab expressions yield Coxsackie viruses more consistently than catch samples of sewage (Table 3). When these swab

TABLE 3

Comparison of Sampling Methods on Coxsackie Virus Recovery from Colonie Sewage Treatment Plant

Date of Collection	Sample	Infected/Total Animals
9/11/52	Catch	0/16
9/8–9/11/52	Swab	3/16
9/11/52	Catch eluate	0/16
9/8–9/11/52	Swab eluate	8/16

expressions are coupled with resin treatment, the frequency of recovery is greater also than from similarly treated catch samples (Table 4). The use of

TABLE 4

Comparison of Sampling Methods and Resin Treatment on Frequency of Coxsackie Virus Recovery from Sewage

Sample	Total Number of Sewages	Positive Sewages	Per cent Positive Sewages
Catch	16	2	12.5
Swab	8	4	50
Catch eluate	19	11	58
Swab eluate	14	10	71

resin-treated swab expressions detected virus more consistently throughout the period tested than other sampling procedures (Table 5).

OCCURRENCE

In order to test the procedure de-

TABLE 5

Comparison of Sampling Methods on Frequency of Coxsackie Virus Recovery from Sewage During Different Months

Sample	Positive/Total Sewages			
	August	*September*	*October*	*November*
Catch	0/9	2/7		
Swab	2/3	2/2	0/3	
Catch eluate	5/10	6/9		
Swab eluate	2/3	1/1	6/9	2/8

scribed above under practical conditions, sewages in the Albany area were examined from July, 1952, through March, 1953, for the presence of Coxsackie viruses.

TABLE 6

Sewage Treatment Plants Tested for Coxsackie Viruses

Estimated Population Served (Thousands)	*Plant*
130	Albany
50	Schenectady
15.2	Watervliet
[illegible]	Delmar
[illegible].8	Scotia
5	Rotterdam
3	Colonie
2.6	Latham
2	Ravena

Locality

During a one-month period, July 28 to September 3, raw sewage from nine treatment plants within 20 miles of Albany was sampled. Of these, seven contained Coxsackie viruses. The two plants where virus was not recovered were the smallest examined, serving a small population (Table 6). From data given below (Figure 1), this testing interval falls within the period of greatest incidence of Coxsackie viruses in sewage; it is probable, then, that if the viruses occurred in the locality, they would appear during this interval or not at all.

Seasonal Incidence

Three of the plants where Coxsackie viruses were detected initially in August, 1952, were examined at intervals until March, 1953. As indicated in Figure 1, virus was present until the middle of November and was not detected during the winter months. On the basis of number of isolations from positive sewages, i.e., those containing virus (Figure 1), Coxsackie viruses were present in greatest amount from July to early September. Thereafter, the amount dropped off gradually.

Survival

In sewage treatment plant—In order to determine whether sewage treatment

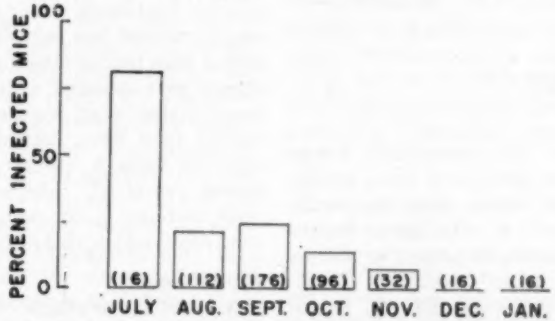

FIGURE 1—Frequency of Coxsackie virus isolation according to month. The figures in parentheses refer to the total number of animals inoculated.

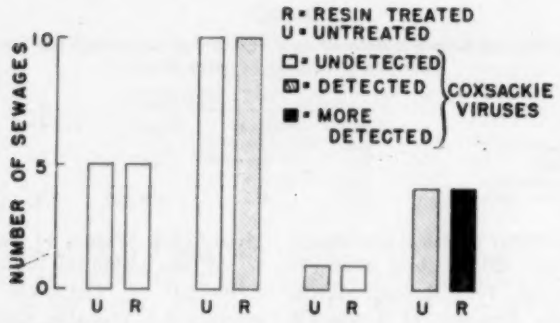

FIGURE 2—Comparison of sample treatment on frequency of Coxsackie virus recovery from sewage.

disposes of the Coxsackie viruses found in raw sewage, 48-hour swab samples from various stages in the Colonie sewage treatment plant were examined for virus (Table 7). In this plant sewage is subjected to the following treatment: primary sedimentation, trickling filter clarification, and secondary sedimentation with simultaneous chlorination. Viruses were detected only in the trickling filter dosing tank and in the trickling filter effluent. At the time of testing, none were detected in the raw sewage influent, the primary sedimentation tank influent, or the secondary sedimentation tank effluent.

TABLE 7

Coxsackie Viruses in Colonie Sewage Treatment Plant

Sample	Dates of Collection	
	10/14–16/52	11/5–7/52
Raw sewage influent	—	—
Trickling filter dosing tank	+	—
Trickling filter effluent	+	+
Plant effluent	—	—

In storage—For convenience, before testing for the presence of virus, sewage samples and swabs were frequently frozen at —55° C. In many laboratories such storage for preserving viruses in tissues or tissue suspensions is routine. This procedure did not reduce infectivity of the samples for at least a five-month period (Table 8).

TABLE 8

Coxsackie Virus Recovery by Resin Adsorption After Sewage Storage

Storage Interval	No. Infected/16 Inoculated Animals	
	Original Test	Final Test
8/21/52 — 11/ 7/52	3	3
9/10/52 — 11/ 7/52	12	11
10/16/52 — 3/13/53	2	2

Testing Method

That resin adsorption improves the detection of Coxsackie viruses in sewage is clear because (1) virus was detected in resin-treated samples and not in the same samples untreated; and (2) more virus was detected in resin-treated samples than in the same samples untreated shown to contain Coxsackie viruses. Of 15 samples not infective in the original state, virus was detected in 10 after the samples were resin treated. Of five samples containing detectable virus, a greater amount was evident in four following resin treatments (Figure 2). The viruses were detected with greater frequency, also, when samples were resin treated than when untreated, as indicated in Table 4. During the testing period involved, August–December, resin treatment of samples gave the most consistent yield of virus (Table 5).

Reproducibility

A necessary attribute of a detection method is its reproducibility. The results of the storage experiment described

above (Table 8), also indicate that resin treatment of sewage samples gives reproducible amounts of virus.

Types Isolated

Most of the strains isolated had the characteristics of Coxsackie Group A viruses; their serological classification will be discussed in a later report. To determine if resin treatment were limited in its capacity to the recovery of Coxsackie Group A virus from sewage, sewage samples were inoculated with known amounts of Group A (Type 10) and Group B (Type 1) strains, and their recovery by resin adsorption determined. As indicated in Table 9, Group B virus was recovered to the same extent as Group A.

TABLE 9

Recovery of Groups A and B Coxsackie Viruses from Resin

Fraction	Vol. (ml.)	M.E.D. (neg. log)	
		Group A	Group B
Original suspension	100	6.4	7.5
Eluate	2	7.9	8.5

DISCUSSION

The data given above suggest that Coxsackie viruses are found seasonally in sewage. This seasonal appearance may be due to (1) continuous discharge of virus into domestic sewage and its failure to survive winter conditions; and (2) seasonal discharge of virus into domestic sewage. Indeed, most of the Coxsackie virus isolations from sewage reported previously have been in the summer and early fall.[8, 9, 19] The latter explanation is the more probable since seasonal temperature fluctuations in sewage are small; in addition, the survival of other microorganisms in sewage, such as the coliform bacteria, is relatively constant throughout the year. Further evidence for this explanation is given by Huebner's report [20] that Coxsackie virus recoveries from fecal specimens taken before, during, and after summer illnesses were limited to the acute stage and the one- to two-month period following.

The recovery of Coxsackie viruses in the trickling filter effluent when not detected in the preceding stages of sewage treatment is less controversial when the nature of trickling filter structure and action is considered. The large area of the filter and its slime growths present opportunities for lodging virus particles over a period of time; the sample in the filter effluent may consist of material other than that of the influent, since sewage constituents undergoing change by contact with the filter growths may be retained longer than the period of liquid sewage passage through the filter. The oxidizing action of the filter on sewage may liberate virus bound to some masking compound or may destroy an inhibitor. It is of interest to note that the bacterial virus, *E. coli* B bacteriophage, is not inactivated by trickling filter activity while coliform organisms, on the other hand, are markedly reduced by its action.

Since resin adsorption permits the detection of viruses in samples in which they are not detected without such treatment, an obvious explanation of resin behavior under these circumstances is that of virus concentration. An alternative suggestion is that in the process virus particles are separated from inhibitory substances. The correct interpretation of the resin's mode of action will require further study.

The method described above has certain attributes which recommend it and which are increasingly apparent with use:

1. The manipulations are not involved and can be done rapidly and in a routine manner.

2. They are such that the possibility of laboratory infection is not great. While the resin technic does not eliminate the need for vigilance in handling potentially infectious material, the hazards involved are less than those accompanying other concentration pro-

cedures, such as centrifugation and precipitation of large volumes.

3. The materials and equipment required are relatively inexpensive and readily available.

4. Several samples can be tested at one time.

5. In combination with the sewage swab, routine sampling covering a wide area can be practiced.

SUMMARY

A simple, rapid, and comparatively safe method for detecting Coxsackie viruses in sewage is described, involving adsorption on and elution from ion-exchange resins. With this procedure, sewages were examined for their Coxsackie virus content in relation to source, seasonal fluctuation, types isolated, survival during sewage treatment, and storage behavior.

ACKNOWLEDGMENTS—The generous cooperation of many at the division was essential in carrying out the work. The constant encouragement and support of F. W. Gilcreas and Miss G. M. Sickles are particularly appreciated.

Resins were supplied by Rohm and Haas Company, Philadelphia, Pa.; Dow Chemical Company, Midland, Mich.; and the National Aluminate Corporation, Chicago, Ill.

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This postprandial discourse explores some of the changing concepts that make the question raised in the title such an insistent one. The paper does not end with a direct answer to the question. It fails in this because, of course, there is no incisive, specific answer possible—now, or in the foreseeable future—but the discussion helps to clear the atmosphere.

Who Should Do What in Public Health?*

ROSCOE P. KANDLE, M.D., M.P.H., F.A.P.H.A.

Associate Director, Community Research Associates, New York, N. Y.

THE question posed in the title of this paper seems to be related particularly to the current shifts in the relationships of governmental and voluntary efforts. I firmly believe that the keystone of public health services is a strong, efficient, and effective health service in the local government. I further believe that local governmental health services can be, usually are, and increasingly are, honest and effective. It is part of our job as citizens, as staff persons of public agencies, or as members of voluntary agencies to strengthen and support the governmental services. Actions, words and clichés reflecting distrust in government do not promote better public health services. On the other hand, I want to be equally clear that I believe there is a continuing vital role for voluntary agencies. The strengths which we recognize in voluntary efforts are essential in these days of transition and experimentation, as they have always been.

One traditional and apparently easy way of getting at "who should do what" is to list the things government should do and those which are the province of voluntary agencies. Ruth Fisher, R.N., and I spent several days at a conference recently where a well informed group of persons in the health and welfare fields tried to do this. They were obliged to conclude on the basis of the evidence that no such list can be prepared today. They could not identify any specific functions which could not be done by either type of agency, with the single exception of the activities with direct, sectarian religious objectives. Even here, while recognizing that this is a major field of voluntary efforts, they noted, however, that the government does and should provide chaplain services of many kinds.

They recognized that there must be continuous examination of basic data of needs, costs, and results to determine the most effective ways of financing and providing services. There is constant change and improvement in our values and standards of life and there is no limit to the continued growth of such standards. We are not near a saturation point in health and welfare services. Because cultural lag often means limitation of funds and authority, both tax-supported and voluntary agencies will, however, continue to have limited horizons. Both voluntary and public agencies must recast their programs to conform with changes in public acceptance of services which should be provided by one or the other.

* Presented before the Public Health Nursing Section of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 10, 1953.

It becomes obvious to anyone who gets involved in community planning that there is not now, nor is there likely to be soon, in most communities, enough money from either voluntary or official sources, alone, to do even the jobs which the public are now supporting. The idea that the government could rapidly "take over" major parts of the voluntary health activities is usually unrealistic in terms of actual tax dollars.

There does seem to be a tendency to use public agencies when there is a major increase in need, or a growth of understanding of need, and for services to revert to or continue under voluntary auspices when need is limited or has been reduced. The increasing acceptance as a public responsibility of many aspects of chronic disease seems to illustrate transfer to public agencies. The current recession on mass x-rays and the reversion to the voluntary illustrates the other side.

Furthermore, there is increasing uncertainty as to the availability of both government and voluntary funds for social welfare purposes, as exhibited by such factors as: (1) the reduction of federal funds because of pressures to economize (even here, research funds have been maintained to a large extent); and (2) in some states, conversely, there have been increased funds made available for special projects, such as alcoholism, youth and delinquency, and mental health.

The restrictions and indefinite future of these special projects for which funds are specifically designated make planning difficult. Inflation and changes in the tax structure cause apprehension also about voluntary funds being able to meet increasing costs and needs. Some skeptics even go so far as to say that the tax-free status of many voluntary agencies really means that tax money is subsidizing them and therefore they are at least partly tax-supported agencies.

All of this has relevance to our problems but as Dr. Haven Emerson has pointed out "jealousy and suspicion have no part in the make up of public health work, and competition should be in the direction of excelling in good services rather than in exclusiveness of action of objective."

In just that kind of spirit let us turn now to the trends in public health nursing. The fact is that government is increasingly providing the greater part of the public health nursing services. In 1938,[1] 48 per cent of the public health nurses were employed by official health agencies and 20 per cent more by boards of education, a total of 68 per cent official. In 1953, 54 per cent were employed by official health egencies and 26 per cent more by boards of education, for a total of 80 per cent official. In absolute terms, the number of public health nurses in official health agencies increased from 9,529 in 1938 to 13,831 in 1953, whereas public health nurses in local nonofficial agencies decreased from 5,963 to 4,512. The percentages are subject to some misinterpretation due to differences in the data for the two periods, but they illustrate the point. I must admit that I am not happy about the relative increase of school nurses.

The number of counties having no public health nursing service in rural areas has decreased from 1,050 in 1948 to 671 in 1953. There are now only eight cities and towns of 10,000 population or more which lack full-time public health nurses. These are mostly in the central and mountain states.

On the other hand, taking into consideration the increased population, there are not appreciably more public health nurses now than there were 10 or 15 years ago. For several years, if not indefinitely, the administrative problem will continue to be how to use best the available public health nurses and yet find ways to meet new and increased needs of people. I imagine that all of

us wish we had ways of relating functions to populations in estimating how many public health nurses are needed. The arbitrary ratios are increasingly difficult to use or justify. It seems trite to talk about discontinuing ineffective activities; yet, in a recent review of the public health program in a city there were almost 12,000 nursing visits last year which were of very doubtful value. It is also true that they were made on the basis of policy established by the conservative health officer and the medical staff.

Any discussion of what public health nurses should do and how many are needed inevitably involves the issues of multiple nursing agencies, both official and voluntary. In seeking a trend in this field the facts about the financial support of the voluntary agencies are useful. While income from tax funds in voluntary nursing agencies has steadily increased, tax moneys still amount to only 9.4 per cent for the median in 1953 as compared with the total income.[2] Contributed funds still amount to 51.8 of the median per cents of total income. Two things seem clear: voluntary agencies are not becoming official by way of tax funds on a fee-for-service basis; and it is very unlikely that enough tax funds would, or should, be made available to take the place of voluntarily contributed funds and fees for service from the patients.

You may be very interested in the fact that at the conference which Miss Fisher and I attended there was frequent reference to the combination public health nursing services as a new and significant pattern in official-voluntary relationships. This development is being watched with great interest by all the health, welfare, and social groups.

The National League for Nursing, and the National Organization for Public Health Nursing before it, made a substantial contribution by their studies and by the report of experience with combination agencies. Progress is slow, but so far as I know there is appreciably more progress than slipping back. Some cities are taking devious routes toward combinations by merging some agencies, but not all. There is no question that combination agencies are complex, but that may well be a useful factor in the long run. They have got to be wanted to be born and have got to produce to endure. They are too easily blocked or torn apart to be formed quickly, or to be merely a means for some person or group to secure power or other perquisites. On the other hand, they are an instance where voluntary efforts can be combined with government in the spirit that Charles Evans Hughes had in mind when he said, "Government is not something apart from us, or above us—it is ourselves organized in a grand cooperative effort to protect our mutual rights and to secure common appointments and improvement."

As usual, too, there are personalities involved in combination agency endeavors. Besides the governmental officials and the board of the voluntary agency, there are the health officer and usually at least two directors of nursing services. There is no question that for a combination agency to take place and be a success, there must be a *good* health officer who has earned the confidence of the community and the nurses. Inadequate, narrow-minded and authoritarian health officers continue to be blocks to progress in this field. Dr. Emerson has said, "The time has not yet arrived when the permanence, the disinterestedness, the capacity for intellectual leadership can be found widespread among health officers to justify our sacrificing the precious spirit of individual non-official initiative for the sake of the entirely logical relationship suggested in, that is governmental responsibility." The circumstance of having two directors of nurses with objective attributes and the courage to

do what is necessary to improve services irrespective of personal or agency security is not always achieved either.

An essential part of a discussion of expanded services of any kind, or of combination services, is the issue of nursing care of the sick at home. You will recall that the National League for Nursing sponsored a conference last December at the Arden House of Columbia University. That group recognized that nursing care of the sick at home is a normal part of good total medical care and rehabilitation. They believed that public health nursing services which include care of the sick at home should be available to all who need them. Anybody could initiate such services. There is no fixed pattern of what agency can, should or does provide such services. The successful beginnings made in using personnel of different preparation and backgrounds as members of the home nursing team need to be carried much further. Further experimentation with the use of volunteers is needed. Regardless of the sponsorship under which the service is administered, people should be encouraged to pay for service on a cost basis in accordance with their ability to do so. In addition to fees, funds from a variety of sources—private and governmental—will be needed to support a community-wide public health nursing program. Efforts should be made to secure the inclusion of public health nursing among the benefits of prepayment medical care plans.

There is another serious and related unsolved problem, namely, the provision of public health services in the sparsely populated areas, particularly in those areas where standards of living are reasonably high. The big question is how best to meet the current public health needs of the people. It seems quite clear that a traditional local health unit primarily designed to control communicable diseases does not do this. In many of these areas there are expensive, direct state services contracting with local clinics, etc., but if there is a broad pattern or a *good* solution I am not aware of it. I am frank to say that I do not know the answer. I am sure, however, that the solution does not lie in using the excuses "we are trying to get a health unit, or we have been trying to get a health officer." These notions have been blocking progress for too long a time and we must have the courage and vision to at least seek other solutions.

We can also turn to the old problem of prenatal care as a test to give us some perspective for current and future needs. The excellent paper by Yankauer, Goss, and Romeo in the August, 1953, *American Journal of Public Health* on "An Evaluation of Prenatal Care and its Relationship to Social Class and Social Disorganization" is worth considering. Their study was made in Rochester, N. Y. They studied 207 mothers who were considered to have received no prenatal care or a grossly inadequate amount. This was 14 per cent of the ward deliveries. They also studied a control sample of 105 ward patients who did receive reasonably adequate care. As you may know, Rochester provides extensive medical care and public health nursing services. There was little evidence that resources were not easily available.

Among 208 births in the study group there were 41 babies, or 20 per cent, weighing less than 2,500 gm. Among 105 births in the control group only 9 babies, or 8.5 per cent, that weighed less than 2,500 gm. There were nine neonatal deaths in the study group and none among the controls.

Among the study group, 26 per cent of the white births were illegitimate as compared to 4 per cent among the controls. Two very significant things stand out. First, it is possible to reduce still further infant mortality and morbidity.

You note that the mortality and immaturity rates are still relatively high in the study group. Second, these mothers did not seek prenatal care or use it, in spite of its availability. There are, of course, many other implications. Relating it to this discussion, one might say that here is a special task to be attacked more vigorously by the voluntary nursing groups and a good case could be made. Or, one might say this is a large, difficult problem, but merely an intensification of functions already accepted by government, and thus the health department should be the agency to solve it. We realize from the evidence in the study and in our experience that this is a complex situation. Involved here are problems of rejection of pregnancy, social conflicts, economic dependency, nutrition, housing, etc. These mothers and the families to which they belong have constellations of problems which often require a total family diagnosis and an appropriate combination of sustained services for their solution. These mothers are often members of a hard core of multiproblem families who soak up a large and disproportionate share of publicly provided services, which, as presently organized, may not be the appropriate constellation for care or prevention. It seems fairly obvious that no one agency can solve these problems and the issue of official *or* voluntary becomes silly as one tries to fit together the services needed from whatever source. Neither do agency combinations nor cooperation or integration solve one phase of the problem, namely, the fact that the staff worker or workers who have the best rapport can help the mother and the family most. Public health nurses and well trained family social workers with medical and psychiatric background, or both, are probably the key persons. Yet, for technical as well as rational and economical reasons, one adequate home-visitor type of worker is apt to be more effective than more than one. Does this suggest that the ultimate kind of function and training for home visitors, at least for these toughest problems, has not yet evolved? Experiment along such lines might well be undertaken by voluntary agencies, either nursing or family casework, or both, or in combination, or in any other way in which a beginning can be made.

In summary, we have seen that official and voluntary roles are shifting and becoming less easily defined, actually there are few functions in the health and welfare field which cannot be done and are not somewhere being done by either or both types of agencies. However, a strong official local health unit is usually the keystone of local health services. It is equally clear that voluntary health agencies and voluntary nursing agencies have a vital and continuing role to play. Although the government is furnishing increasing proportions of the public health nursing services there seems to be no trend to "take over" the voluntary nursing services with tax funds. As Dr. Emerson says "jealousy and suspicion have no part in the make up of public health work, and competition should be in the direction of excelling in good services rather than in exclusiveness of action or objective."

We have seen that, while substantial progress has been made in extending public health services, we are not making very much gain in the ratio of public health nurses as related to the population. The big problem is still how best to use the public health nurses we have or are apt to have.

Combination services seem to be a trend in the right direction. They are complex and hard to organize and operate; yet these may well turn out to be virtues in the long run. Combination agencies provide one of the ways of expanding the nursing care of the sick at home. Both logic and the pressures of public demand will probably soon

make this a normal part of all public health nursing, official as well as voluntary.

We have not found adequate ways of how to get the needed public health services to the sparsely populated rural areas.

Even as old a problem as prenatal care shows us how complex is the tough, hard residual core. There are still a significant number of mothers not getting good care even in areas with extensive resources. Some mothers have constellations of health and social problems which require appropriate combinations of remedies and services. They need what we call public health nursing and also what we call casework. There is a lot of common ground in these two fields; yet neither meets all the needs. The question is how many and what kind of home visitors should there be for these tough cases.

This brings me to the text and to the end of this discussion. In order to provide effective public health services, we must have humility and a warm understanding of our colleagues in the many social fields and of the people whom we serve. Further, we must be willing to heed the old advice, "If anyone forces you to go one mile, go two miles with him." Our success or failure will be in direct proportion to our being willing to do that extra bit, to go a little farther in trying to understand and work with people in other agencies who are trained in other disciplines. We need to take the time and effort to understand what other people do, how they work, and the legal and other restrictions in their work. When we actually work out a way for functioning together which will benefit our communities, we will have realized the most significant of the changing aspects of public health.

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Polio Vaccine to Be Evaluated

The National Foundation for Infantile Paralysis is undertaking large-scale testing of a polio vaccine to determine its effectiveness. Jonas E. Salk, M.D., at the University of Pittsburgh, on the basis of his foundation-supported research there, concludes that "there may be several possible methods of producing a safe and effective vaccine against polio." He has already used various vaccines on more than 600 persons.

Using Dr. Salk's studies and those of other scientists as a starting point, NFIP's study will get under way early in 1954. Such a validity test will entail the vaccination of thousands of children during a nonepidemic period and then observing the results in terms of protection when there is a polio outbreak in the communities in which they live.

In announcing that plans were being developed for the evaluation study, Basil O'Connor, NFIP's president, pointed out two major achievements in developing the means of preventing polio. At Harvard University and the Children's Hospital in Boston, John F. Enders, M.D., in 1949, discovered a method for growing polio virus in test tube cultures of non-nervous tissue. In 1951 three different types of polio virus were identified by teams of scientists working at the Universities of Southern California, Utah, Kansas, and Pittsburgh.

Of this "experience-meeting" type of paper we could do with many more. In it a health officer tells what led his department to embark upon an old, yet a new, activity and what came of this decision.

Social Service in a Health Department

MURRAY GRANT, M.D., D.P.H.

Commissioner of Health, Cattaraugus County Department of Health, Olean, N. Y.

IN this paper, I propose to set forth the situation which convinced me of the need for a medical social worker in a health department, together with the manner in which the work of this person has been developed during the year in which she has been engaged. I am not presenting a wholehearted endorsement of the employment of persons in this capacity in every health department because it is obvious that the situation is not the same in every locality.

As early as 1924, and during the subsequent years of the County Health Demonstration (under the direction of Reginald M. Atwater, M.D.), the need for a social caseworker was well recognized, and as many as four such persons were employed in the year 1929, together with a supervisor. Most of their time was occupied in making direct home visits, chiefly concerning various aspects of child care, particularly those demanding legal or institutional action, such as neglect cases and child dependency. These functions have since been taken over by the County Welfare Department and this paper will, I believe, show that the activities of our present worker are quite different in many respects from those of these early social caseworkers. However, it is equally clear that a close relationship between health and welfare departments still is essential if the social and economic factors concerning health are to be coordinated.

For several years, the Cattaraugus County Health Department has been participating in the New York State Medical Rehabilitation Program in which arrangements are made for the diagnosis and treatment of physically handicapped children and adult poliomyelitis cases. Until September, 1952, the County Welfare Department had been making financial investigations of each family in which this program was to be implemented, recommending to the judge of the Children's Court whether or not the parents should contribute partially toward the cost of the treatment. The Welfare Department also was responsible for obtaining these contributions from parents following the judge's order. However, few contributions were obtained, and the Health Department was asked continually to have the court orders amended so that the physicians and hospitals could be paid their fees. In addition, the Health Department was frequently placed in a confusing position because we did not know when any of the financial transactions took place, how much was paid, and to whom. This made close supervision of the program very difficult. Moreover, the Welfare Department had so many other responsibilities that it took a considerable time before investigation of each case was completed, thus prolonging the delay before treatment could be initiated.

This, then, was the primary motivation leading to my decision to request

the services of a medical social worker, and in this, I had the concurrence of the Commissioner of Public Welfare. In addition, it was believed that our public health nurses needed guidance in working with families in which they encountered major social problems.

Before the social worker joined our department in September, 1952, I had worked out a tentative program for her:

1. To make financial investigations of the families of patients coming under the Medical Rehabilitation Program and to assist in the general administration of this program.
2. To discuss and investigate social and emotional problems of patients coming to orthopedic clinics, chest clinics, and child health conferences.
3. To assist in arranging for hospitalization of cases of tuberculosis.
4. To assist families with mental health problems and those in which there were problems of the aged or chronically disabled.
5. To accept referrals from physicians and make appropriate investigations.
6. To hold conferences with the public health nurses in order to advise them relative to social problems in any of their cases.
7. To act as a liaison between this department and other agencies and to work out procedures which would insure mutual understanding, cooperation, and exchange of information.
8. To compile and keep up to date a directory of all other agencies with whom we have some association.
9. To make home visits as necessary.

A question soon arose about the relationship of the social worker with the public health nurses. It was not easy to decide whether the social worker should visit homes herself; whether she should visit only in conjunction with a public health nurse; or whether the public health nurse should do the home visiting as usual and utilize the social worker as a consultant in those cases where she needed assistance. It became evident eventually that this latter plan was preferable, although a great deal of time and effort was spent in evaluating these different procedures. The social worker now does not often make direct visits to homes to deal with these cases. The public health nurse performs this work and the social worker acts as a consultant. In order to carry out this program, the social worker meets with the public health nurses individually, as necessary, and at regularly scheduled casework conferences in groups, once a month, to discuss problems which have arisen in the nurses' case load, and to give advice and guidance. At these casework conferences she also makes information relating to social services and agencies available to the public health nurses.

As an example of the way a social worker may assist the public health nurse, the following case is quoted:

"M.L. became known to the Health Department when her parents asked that we arrange to have her examined at a cerebral palsy diagnostic clinic. She was seven years old and had previously been diagnosed as having cerebral palsy with mental deficiency. Although institutional care had been recommended, the parents had continued to care for the child in the home. An appointment was made as requested and once again it was recommended that the child be placed in an institution for mental defectives. A public health nurse visited the family and discussed with them the findings of the examining team. The parents were still reluctant to make any definite decision, and the public health nurse discussed this case with the social worker and asked her assistance. It appeared that the closest state school for mental defectives was about 150 miles distant, so there was a problem of family visits if M.L. were institutionalized there. In view of the fact that the family had relatives in New York City, they were considering the possibility of moving there and placing M.L. in an institution close by.

"The social worker and the public health nurse had many discussions about this patient, particular attention being

paid to the fact that there were other normal children in the home who were being neglected because of the demand on the mother's time. A cooperative visit was then made to the family after the social worker had gathered the necessary information about admission to state schools for mental defectives. The social worker explained to the parents that they could arrange for M.L. to be institutionalized as originally recommended, and if they did move to New York City, arrangements could be made to transfer M.L. to an institution which would be closer to the family.

"It was agreed that this would be the best plan to follow, and the social worker advised Mrs. L. to write to the director of the nearest state school for an interview. Their fears of never being able to have their child close to them again having been dispelled, Mr. and Mrs. L. arranged for an interview with the director of the school and were satisfied that institutional care of their child was the only real answer to their problem."

One of the new procedures which we have initiated is that of sending medical social histories with patients for whom we arrange hospitalization, so that the hospital staff can be made aware of the family circumstances and problems.

The employment of the social worker in the medical rehabilitation program, particularly in regard to the financial investigations, has resulted in a great improvement in our service and also has enabled us to give this program the close financial supervision it requires. The social worker has been able to insure a considerable amount of family financial participation in the treatment program which we believe is valuable in allowing the parents to feel that they are playing their part. As a matter of fact, the total contributions received to date from parents, insurance companies, and other agencies, exceeds the social worker's salary and expenses by a substantial sum.

It was found to be quite impractical to have the social worker take part in child health conferences, chest clinics, and orthopedic clinics, since her services were utilized only to a very limited extent, and therefore a great deal of her time was wasted. This service was withdrawn and the public health nurses deal with many of the problems themselves, seeking advice and guidance from the social worker when necessary.

The social worker has participated to a limited extent in our sanitation program. We have recently condemned a number of houses in the county and she has been employed to assist in housing these people and sometimes in working out a program which might result in the person involved being able to provide the required sanitary facilities over a period of time.

One of the paramount results of the contributions of the social worker has been the excellent relationship she has established and maintained with the other social agencies in the county. She has acted as a liaison officer between the Health Department and those agencies, such as the Welfare Department and Catholic Charities, interpreting our service to them and their services to us. This has fostered cooperation between the Health Department and these agencies. She also has been engaged in compiling a directory of agencies and services in the county which will be of great value when completed, since this directory will show how the Health Department can use these organizations. Unfortunately, there is no Council of Social Agencies in our county and no social service exchange; the social worker has been and is studying this problem to determine the need and feasibility of establishing this service in the county.

The most recent addition to the duties

of the social worker was her appointment as chairman of a Health Department committee to study the needs and problems of the aged in our county. She has done a considerable amount of work on this project, which has included such subjects as finances, employment, chronic diseases, housing, recreation, and has made some definite and valuable preliminary recommendations. It may well be that this committee will be expanded in the near future to include other agencies and then the social worker will clearly be a valuable resource person within this group.

The question that will undoubtedly be raised in the minds of readers will be whether some other employee within the health department could have performed these services instead of and as well as the social worker. The public health nurse would probably be suggested, for certainly a good public health nurse can perform many of these duties. But anyone who reviews our program will realize that the public health nurse could not have fulfilled all of these functions even if she were willing to do so and had the time. The following case may serve further to amplify this impression:

"A few months after the premature birth of their baby Mr. and Mrs. A. discovered that their child was blind. Although they took her to an ophthalmologist, they were not satisfied with the findings and sought several further consultations in various parts of the country. By the time they were able to accept the diagnosis of retrolental fibroplasia, they had accumulated debts in the amount of $800. Mrs. A. visited the local association for the blind and explained that she was very worried because she was unable to keep up the payments on debts contracted prior to the birth of the baby. The members of the blind association counseled the mother as best they could and also assumed responsibility for one month's payment of the most pressing debts. The president of the association then asked that the social worker interview the parents to determine their exact situation and to help them set up a budget which would provide for gradual reduction of their debts. This was done, and with the permission of the parents the social worker saw the president of the bank which held a mortgage on the A. home and discussed the problem with him. She learned that the family had been prompt and reliable with the monthly payments on their mortgage and that the bank also held a note for $200 on which the payments were up to date. It was decided that, if supplemental assistance could be obtained from another source, the bank would increase the mortgage to its original amount.

"The social worker then met with the finance committee of a local service club whose special project is helping handicapped children. She explained the present budgeted needs of the family and presented a plan by which the family could meet these debts over a period of a year. The service club agreed to lend the family whatever amount they needed up to $150, with the understanding that this money would be paid back in a year's time. These arrangements having been made, the social worker accompanied Mr. and Mrs. A. to the bank where a new mortgage was drawn up and money to cover all but a few minor debts was given to the family. The social worker then helped Mr. and Mrs. A. set up a monthly budget for the next 12-month period and received their assurance that they would follow it. In case of an emergency necessitating deviation from this plan the family agreed to call the social worker so that an adjustment might be figured out. A recent check has shown that the family is following through according to the established schedule."

Certainly, during the past year many of my views on the ways a social worker

would fit into the health department picture have been changed. Experience has shown that certain functions were impractical and we have been guided accordingly, so that at the present time, the following are the duties of the social worker in our department:

1. Carries on liaison, interpretative, and cooperative relationships with community social agencies such as the Department of Welfare and Catholic Charities; with service organizations, such as the American Red Cross, National Foundation of Infantile Paralysis; and with service clubs such as Kiwanis, Rotary, and Lions, in order to most effectively mobilize resources for meeting the patient's needs for which the Health Department has no available service.

2. Makes financial investigations of patients receiving services under the Medical Rehabilitation Program with a view to obtaining family participation.

3. Discusses patient's problems with other members of the staff (particularly public health nurses) and, in cooperation with them, is responsible for planning casework treatment so as to best meet the needs of the patient.

4. Where problems presented are beyond the scope of the public health nursing service, the social worker applies her casework skills and technics in terms of the needs presented by the patients and the function of the agency concerned.

5. Participates in the orientation program for new staff members in order that they may have some understanding of the way in which the Health Department meets the social needs of the family.

6. Gathers information from various sources such as bulletins, books, and pamphlets on specific topics which may be used in teaching other members of the staff regarding social service practices.

7. Insures that medical social histories accompany patients for whom the Health Department arranges hospitalization (for example, tuberculosis patients).

8. Acts as chairman of a committee to investigate the needs and problems of the aged and to make recommendations for meeting these needs.

9. Draws up a comprehensive directory of community resources with a view to assisting other members of the staff to use these resources intelligently and to the patient's advantage.

A comparison of these duties with those that I had in mind prior to the time at which the social worker was employed will show how some of her duties have been discontinued or modified and others added. It is, of course, by no means certain that these duties will remain fixed. As a matter of fact, we are hoping to be able to establish a mental health clinic in the county and, should this program materialize, it may well be that the social worker will play an important role. Times change and we must change with them, but I do believe that we have, in a medical social worker, a valuable addition to the staff, and a person who, if given the opportunity, can make a valuable contribution to the advancement and improvement of health department services.

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Several states still permit feeding raw garbage to swine. Even where the insanitary practice is prohibited by law, some hogs are found infested with trichinae. To protect those who eat raw or partially cooked pork products, a second safeguard—comparable to the pasteurization of milk—is proposed.

Prevention of Trichinosis by Gamma Irradiation of Pork as a Public Health Measure*

S. E. GOULD, M.D., H. J. GOMBERG, PH.D., AND F. H. BETHELL, M.D.

From the Atomic Energy Commission Laboratory on Biological Effects of Irradiation; the Michigan Memorial-Phoenix Project; and the Department of Pathology, University of Michigan, Ann Arbor; and the Departments of Pathology, Wayne County General Hospital, Eloise, and Wayne University College of Medicine, Detroit, Mich.

IN an address before the American Public Health Association at its Eightieth Annual Meeting in Cleveland on October 23, 1952, Dr. Brock Chisholm,[1] then director-general of the World Health Organization, stated:

> Even in our own countries of the west we have sacred cows or their equivalent. There are things that natives do not see that people from outside do see. There is, for instance, the problem in the United States of America of trichinosis, which is regarded with astonishment and horror by many other people in many other countries. It may interest you to know that when travelers come to the United States from European countries their doctors warn them that under no circumstances should they eat pork of any kind because this country in that field is regarded as quite uncivilized by many other countries. This is just a fact. There is no other well-developed country which allows trichinosis among its hogs as this country does, affecting the health literally of millions of people all the time. In no other country would people be allowed to feed raw garbage to their hogs, but there is a sacred cow in this country and its name is business, and this has not been effectively approached, I understand, by the health authorities in this country up to this time. It has been dealt with, and effectively, by every other country which even approaches this country in terms of social and economic development.

In December, 1952, the first concerted effort was taken to meet this challenge when the National Conference on Trichinosis [2] met in Chicago and formulated recommendations for the control of this disease. One of the recommendations of this conference [3] was that state legislatures require that garbage fed to hogs be cooked in order to prevent trichinosis and other diseases, including vesicular exanthema, transmitted to hogs by means of raw garbage. As of September 1, 1953, 41 states have adopted such a requirement. Another recommendation was that research be encouraged on the effect of ionizing irradiation on trichinae in hog carcasses. It is the purpose of this paper to discuss the practicality of gamma radiation as a public health control measure for trichinosis.

* Presented before the Laboratory Section of the American Public Health Association at the Eighty-first Annual Meeting in New York, N. Y., November 10, 1953.

BRIEF RESUMÉ OF THE DISEASE

Extent of trichinosis in United States—In 19 surveys of autopsy material [4] in the United States during the years 1931–1942, covering a total of over 11,000 human autopsies, 16 per cent of bodies were found to harbor *Trichinella spiralis* in the muscles. When more thorough methods of examination were instituted, however, the incidence in separate surveys was found to be as high as 36 per cent. On the basis of present findings, it is conservatively estimated that at least 25 per cent of all Americans during their lifetime will harbor trichina larvae in their muscles (Gould [5]).

The incidence of trichinosis in the United States among hogs during the past 50 years has shown relatively little decline. The average incidence among all the hogs is approximately 1.5 per cent; from 5 to 15 per cent of hogs which are fed raw garbage are trichinous, while less than 1 per cent of those fed grain are infected.

Life cycle—Inasmuch as the chief reservoir of trichinosis in man is the hog, it is well to review briefly the life cycle of the trichina worm. Man acquires trichinous infection by ingesting undercooked or underprocessed meat, chiefly pork or pork products, containing living larvae of the nematode, *Trichinella spiralis*; the pig acquires the infestation principally by eating scraps of trichinous pork in the garbage. Upon digestion of the meat in the stomach and duodenum, the microscopic larvae are freed from the cysts. The larvae soon attach themselves to the small intestine of the host by burrowing a short distance into the mucosal lining. Within the next few days the larvae enlarge and develop into adult male or female intestinal worms. The adult forms are exceedingly fine and hairlike, the males measuring 1–2 mm. in length, the females 2–4 mm. After the second day of development, they copulate and toward the end of the first week in the gut the adult female gravid worms, partly imbedded in the mucosal lining, begin to give birth to minute larvae of the second generation. In man the adult female worms continue to bear their young for a number of weeks after the onset of the infestation. The young larvae of the second generation enter the intestinal lymphatics, reach the venous system, traverse the pulmonary circuit to enter the systemic circulation, whence they leave the blood capillaries to settle in the voluntary muscles of the body. There, during the following 4 weeks, they progressively enlarge, coil, and encyst.

In man the encysted stage represents the end of the life cycle, unless it should happen that his flesh is eaten by another host. As far as the pig is concerned, however, the life cycle is repeated if its meat, inadequately cooked, is eaten by another animal.

Symptomatology—In general, the symptoms of the disease and their severity depend on the number of living larvae that are ingested. Upon invading the muscles, the parasitic larvae produce destruction of the fibers and induce an inflammatory reaction that is attended by swelling and by pain, particularly on movement of the involved muscles. Other important symptoms, particularly in moderately severe infestations, include nausea; vomiting; diarrhea or constipation; and abdominal cramps, as a result of irritation of the intestinal tract by the adult worms; fever; swelling of the eyelids and of the voluntary muscles of the body; conjunctivitis; skin rashes; and a great variety of other less constant findings. Diagnostic tests include recovery of the organism in the suspected meat; recovery (occasionally, during the early stages of an active infestation) of one or more young larvae in a specimen of venous or arterial blood or in the cerebrospinal fluid of the host; eosinophilia, i.e., an increase in eosinophilic cells of the blood beginning about the tenth day, from the

normal level of 1–3 per cent, frequently up to 60 or 70 per cent during the third or fourth week; an immediate skin reaction upon intradermal injection of a trichina antigen (after seventeenth day); development of precipitins and complement-fixing antibodies (after thirtieth day); and positive biopsy (presence of encysting trichina larvae together with evidence of acute or recent inflammation in a portion of skeletal muscle excised from the patient).

Treatment and prognosis—The treatment is symptomatic, no specific measure other than bed rest being available. In some cases cortisone or ACTH is palliative, tending to lessen the severity of the symptoms during the acute stage. In the vast majority of cases, only a relatively small number of living larvae are ingested with the meat and consequently the infection is subclinical. Most clinical infections of mild degree are not correctly diagnosed because the symptoms resemble those of many other types of infection. Of the cases that are correctly diagnosed, the mortality rate in the United States is generally given at 5 to 6 per cent. We believe that a large percentage of patients with trichinosis treated in hospitals and most patients treated at home are not reported to public health authorities.

PRESENT METHODS OF CONTROL

Microscopic inspection of portions of meat from the carcass of every hog slaughtered. This method is in use in Germany and a number of European and South American countries, but for the United States it has been considered to be impractical for rapid processing of pork. Microscopic inspection was applied in the United States during the years 1898–1906, but only for pork exported to Germany; and among approximately 8,000,000 hog carcasses so examined, an incidence of trichinosis of 1.5 per cent was found. It was thought, however, that almost an equal percentage of infestations was missed, and because of the many failures to detect *T. spiralis,* Germany at the end of that period refused to accept pork from the United States and, as a result, microscopic inspection was discontinued.

Low-temperature treatment—A small percentage of the raw pork that is processed in packing plants under United States inspection is processed by *low-temperature treatment.* This process requires that the following temperatures be produced on the outside of containers, for cuts of pork not over 6 inches thick: 5° F. for 20 days; —10° F. for 10 days; or —20° F. for 6 days. A practical point for users of pork and pork products in the home is that these meats may be placed in home freezing cabinets or in rented lockers (at temperatures ranging from 0 to 5° F.) for 20 days to insure against the danger of trichinosis. It has been shown that very low temperatures may destroy the trichina rapidly (Gould [6]). Thus, a temperature of —36° F. maintained for 2 minutes at the center of the meat will kill the larvae. The production of such low temperatures, however, is expensive and, at the present time, impractical.

Special methods of processing—In United States-inspected plants there are also various specific regulations for methods of processing, by heating and curing, certain pork products to insure against the hazard of trichinosis. As an example, the regulation for the smoking of ham requires that an internal temperature of 137° F. be produced in the ham. (The upper thermal death point for *T. spiralis* is 131° F.)

Cooking—This is the principal method upon which the consumer must rely. All portions of the meat must be white; there must be no trace of pink. One must ascertain that cooking has been adequate, particularly in fried meats, such as pork chops, pork sausages, or hamburgers, and in frankfurters, containing pork, as in these pre-

pared meats the inside may be underdone or raw even though the outside is well done or burnt. For small cuts of pork, 15 minutes of boiling per pound is adequate, but large thick cuts require boiling for one-half hour per pound. The minimum temperature *at the center* of such cuts should be at least 137° F.

Cooking garbage that is fed to hogs —In Canada, England, and in a number of states in the United States it is now required that garbage that is to be fed to hogs be previously cooked. Generally, this means boiling of the garbage for 30 minutes. Feeding garbage is insanitary, but the chief deficiency of the method in the past has been inadequate enforcement. Even though adequate cooking of garbage cannot be strictly enforced, it does tend to reduce the incidence of trichinous infestation in hogs, as well as of a number of other porcine diseases transmitted by raw garbage, including vesicular exanthema, hog cholera, foot-and-mouth disease, salmonellosis, and tuberculosis.

Methods of preventing trichinosis, therefore, that are now in use in the United States include cooking of garbage that is to be fed to hogs, special methods of processing, including exposure of pork to certain low temperatures for specified periods, and adequate cooking of the meat. Chief reliance by the consumer, however, must be placed on adequate cooking, since the bulk of pork is sold in the raw state. It is precisely here that the chief defect lies in our method of control, in that the responsibility for prevention of trichinosis is placed upon every cook or consumer of pork. We believe that in the control of this public health problem the consumer should not be expected to assume the responsibility for prevention of this disease.

GAMMA IRRADIATION OF RAW PORK

During the past 2 years we have been conducting experiments on the effects of ionizing radiation on trichina larvae *in vitro*, in rat muscle and in pork. We have been able substantially to confirm the findings of Schwartz,[7] Levin and Evans,[8] and Alicata [9] on the effect of x-rays on trichina larvae, and the findings of Alicata and Burr [10] on the effect of cobalt-60. We have shown [11] that a dose of 3,500 r x-rays applied to trichina larvae *in vitro* will render most of the maturing parasites sexually sterile, and that a dose of 5,000–6,000 r will prevent most of the larvae from developing to adult forms. When x-rays were applied to trichinous rat muscle in thicknesses of 1.5 cm., a dose of 15,000 r was required to prevent the larvae from maturing. When we exposed trichinous rat muscle to gamma radiation from cobalt-60, a dose of 15,000 r produced sterility of the larvae and a dose of 18,000 r inhibited maturation of the larvae.[12]

We have also shown that exposure of trichinous pork in commercial quantities to the action of similar doses of gamma radiation from waste fission nuclear material [13, 14] produces the same results, effectively preventing the disease in test animals fed irradiated trichinous pork. These doses have produced no change in the flavor of pork that was detectable by taste. Furthermore, they do not induce any radioactivity in the meat, so that no injury is produced in any person who eats the meat. It would appear, therefore, that the application of gamma irradiation to raw pork, if systematically carried out, could largely eradicate this disease or reduce it to negligible proportions. In experiments now in progress at the Fission Products Laboratory of the University of Michigan, white rats fed for several months exclusively on food that has been exposed to 2,000,000 r.e.p.* cobalt-60 have shown apparently normal development

* R.e.p. (roentgen equivalent physical) is a unit of irradiation.

(Browneil [15]). It is planned to carry these experiments through several generations of rats.

In order to calculate the possible costs of irradiation of pork, a study was undertaken by E. W. Coleman and J. V. Nehemias of the Fission Products Laboratory on the economics of design, construction, and operation of large sources of gamma rays for irradiation of pork in a large pork processing plant. A dose of 30,000 r, providing a margin of safety greater than 50 per cent, was used as the radiation dose to be delivered. A modern 2-story plant in which the killing room is located on the second floor and the finished products are shipped from the first floor was taken as the basis for the analysis. A detailed report of this study will be published separately.

With a single radiation unit, it would be possible in the course of processing to apply irradiation at any one of 5 points as follows: the live animal just prior to slaughter, the carcasses before, during, or after the chilling period, and the finished packaged products prior to shipment. In calculating costs of construction of a radiation chamber, it was thought best to plan such a unit on the second floor level, inasmuch as the irradiation could best be applied during the chilling process on the second floor. The design provides for carcasses to be conveyed on an overhead rail line, for a plant operating 260 days a year, having a daily capacity of 2,000 hogs per day and 520,000 hogs per year. It would be necessary to make provisions for treating the heads, including the tongue, and for keeping the diaphragms attached to the carcasses until after irradiation.

The radiation source selected was a plaque 6 feet high and 5 feet long in which a radiation time of 1¾ minutes would be required to deliver a total effective dose of 30,000 r.e.p. at the surface and 26,000 r.e.p. at the center of an 8-inch thick section. The carcasses would be irradiated by being conveyed along both sides of the plaque, each side of the carcass being exposed to one side of the plaque. The carcasses would be suspended 21 inches from the surface of the plaque and would be moved at a speed of about 6½ feet per minute. Approximately 20 hours would be required for irradiating one day's production. Since it is necessary to chill the carcasses for a period of 24 hours, the radiation process could be easily integrated with the chilling. Furthermore, by using the source for most of the 24-hour period, economic use would be made of its continuous emission of radiation.

The amount of radioactivity required is calculated to be 1.5 megacuries (1,500,000 curies). Shielding for this amount of radioactivity requires walls of concrete 3 feet, 4 inches thick if the chamber is placed above the ground. The design also includes a safety well filled with water into which the radioactive plaque would be lowered in order to permit access to the radiation room when it is not in operation. The outside dimensions of this room measure 28′ 10″ x 20′ 6″. Alternative designs are feasible in which the radiation chamber is placed one story below grade or at ground level.

The radiation chamber is essentially a room with thick walls of concrete. Such a room on the second floor level could be constructed at a total cost of approximately $46,200, not including cost of the radiation source.

There is insufficient information available to make a reliable estimate of the cost of packaged fission products. At present kilocurie gamma sources of cesium-137 processed from fission products can be supplied at a cost of $5,000. On the basis of past experience with a 1,000 curie source of cobalt-60, the total cost, including installation, should be $6,000. Based on standard cost estimates for equipment for chemical processing,

if the unit cost is $6,000 per 1,000 curies of cesium-137 installed, the cost of a 1,500,000 curie source would be $483,000.*

If the required amount of cesium-137 is not available, the use of a multi-element plaque will permit utilization of nuclear waste materials of shorter half-life, in which the least radioactive element would be replaced periodically by a more active supply. Here, the added expense of replacement and more frequent handling may be offset by the cheaper cost of the material.

A reinforced lead shipping container approximately 2′ x 7′ x 8′ for this source would be required. If it could not be rented or supplied without charge, it would cost about $25,000 to construct. This container would weigh about 50 tons and could be shipped on a flat freight car. The total cost of the radiation chamber ($46,200), shipping container ($25,000), and radioactive source ($483,000) would be $554,200.

If the plant were to be written off in a 5-year period and 6 per cent interest included on the investment, the annual cost would be $130,550. If a health physics and operating staff was employed at an annual cost of $20,000 and an additional $10,000 allowed for operation and maintenance of the chamber, the total annual cost would be $160,550.

Based on production figures for 1950, 68,504,000 head of hogs yielded 9,265 million pounds of pork or an average for each hog of 135 pounds, exclusive of lard. For the plant under design (operating at a daily capacity of 2,000 hogs, 260 days in the year) the total production of pork would be 70,200,000 pounds per year. On the basis of irradiation cost of $160,550 per year, the cost of pork produced would be 0.23 cents (2.3 mills) per pound or 31.1 cents per hog. Since cesium-137 has a half life of 33 years, the cost could also easily be written off in a period of 10 years rather than 5 years, thereby reducing the cost during this period to approximately 1.5 mills per pound. Thereafter, the yearly radiation cost would be even less, since replacement or supplementation of the radioactive source would only be required at long intervals. The details of construction and of costs will be published elsewhere.

* This calculation utilized a scaling factor to the 0.6 power, the unit being 1 kilocurie.

DISCUSSION

Because of the lack of adequate control of trichinosis in the United States, it is no wonder that the great frequency of trichinosis in our country has long been a source of "astonishment and horror by many other people in many other countries." Let us examine briefly the reasons for our failure to institute an adequate program. We find that microscopic inspection of pork was deemed not suited to our high-speed processing methods, even though it has been practiced in many other countries for many years, apparently with a large measure of success. The examination of several specimens of meat from every carcass would require a formidable army of inspectors and would impose a substantial additional cost per pound of pork produced. In addition, as previously stated, there is frequently the danger of failure to detect trichina larvae that are present in the specimens examined.

A second possible method of control which could be instituted is that of low-temperature treatment of all pork. While the method is applied to certain products, the costs of producing the necessary low temperatures make this method too expensive to be applied to all pork produced.

A third method, that of boiling all garbage that is fed to hogs, has during 1953 been instituted in most states in the United States. It may be noted that this requirement has thus far been adopted by 41 states, not as a means of

controlling trichinosis in man but as an economic measure to protect the pork industry against the ravages of vesicular exanthema, a disease of hogs which is also transmitted by feeding raw garbage. As a control measure for trichinosis, this method is desirable and beneficial in that it tends to reduce the incidence of the infestation. And yet, among so-called farm-fed and grain-fed hogs, and in Canada where garbage fed to hogs must be cooked, the incidence is still appreciable, ranging from 0.3 to 0.7 per cent. In all likelihood, this degree of infestation is the result chiefly of permitting hogs to eat kitchen scraps containing infected pork. Furthermore, the states of California, New Jersey, and Rhode Island, in which feeding raw garbage to hogs has been most extensively practiced, still allow this practice to continue.

The method of irradiation provides direct protection to the consumer and has many advantages over other methods.

1. It is sanitary. In the dairy industry two approaches to the control of disease are in use. One is sanitation throughout all phases of production and processing; the other is pasteurization of the final product. In the processing of pork the irradiation process is analogous to that of pasteurization. Irradiation of pork is not a substitute for sanitation but it guarantees protection to the consumer should sanitation be defective. The practice of feeding garbage to hogs is insanitary and should not be permitted, but, regardless of whether garbage feeding is or is not permitted, the irradiation of pork would protect the consumer.

2. It is simple and rapid. The apparatus required is compact and long-lasting. The time of irradiation required is 1¼ minutes.

3. It is effective. The meat is rendered free from the danger of trichinosis, thus removing this worry from all who eat pork. The method should eliminate this fear and also tend to increase the number of potential consumers of pork.

4. The wholesomeness of the meat is preserved. No radioactivity is induced in the meat, no flavor changes are produced, and no harm results to the person who eats the meat.

5. The method is relatively inexpensive. It requires only a single room, a source, and a technical staff of only one or two persons for a large packing plant. The estimated cost for such a plant with an estimated daily capacity of 2,000 hogs is approximately 2.3 mills per pound of pork processed, if the total investment (interest included) is amortized over a period of 5 years, and approximately 1.5 mills per pound if investment and interest are recovered over a period of 10 years. The cost in subsequent years is even less. The cost of processing pork for a plant having only one-sixth this capacity (about 80,000 hogs per year) would be about 0.74 cents (7.4 mills) per pound. Costwise, the larger and more centralized plant, therefore, would be more desirable.

6. The method should largely obviate the need for special processing (heating, freezing, or curing) of certain ready-to-eat pork products such as sausages and smoked ham, in order to destroy trichinae larvae. In United States-inspected plants these products comprise approximately 30 per cent of the pork produced.

7. The irradiation method could well become exceedingly valuable in educating the public to eat pork as an article of diet that is *safe*, besides being nutritious and rich in thiamine (Vitamin B_1). Those producers who adopt the method early should have a tremendous economic advantage. Here, again, the situation is comparable to that in the dairy industry in which pasteurization of milk became one of the principal factors in promoting the sale of milk products and in making greater production possible and profitable.

8. The method would tend to eliminate trichinosis at its source, inasmuch as ingestion of scraps of irradiated trichinous pork by hogs would not transmit the infection to them, and consequently their flesh would not carry the danger of trichinosis when it was eaten by man.

As yet there is no commercial plant that is equipped to apply gamma irradiation to pork. The use of x-ray and cobalt-60 could theoretically be applied, but no study has been made of the design of construction necessary or the cost of these agents. The use of atomic waste fission material is still under security control by the Atomic Energy Commission and its release for commercial purpose would no doubt be controlled under license. It is assumed

that its release for industrial use will be forthcoming, and when such material does become available, it is expected that forward-looking public health workers will cooperate with forward-looking pork processors in introducing this method for making pork safe for human consumption. Such a boon in the interest of the public health would redound to the credit and advantage of every one concerned.

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Standards of Care, Section II

The National Committee on the Aging of the National Social Welfare Assembly has published the second section of the booklet, *Standards of Care for Older People in Institutions,* which is subtitled "Methods of Establishing and Maintaining Standards in Homes for the Aged and Nursing Homes." Current practices in licensing and standard-setting throughout the country are reviewed and analyzed. Section 1, published several months ago, was devoted to *Suggested Standards for Homes for the Aged and Nursing Homes.*

National Social Welfare Assembly, 345 E. 46th St., New York 17, N. Y.; $1, special rates in quantity.

Is this mostly a teapot tempest, or is there a serious eye health hazard here? Wherever your prejudices may lie in the matter of the common and indiscriminate re-use of 3-D movie viewers, you will be impressed with the measured recommendations outlined here.

Bactericidal and Fungicidal Effects of Ozone on Deliberately Contaminated 3-D Viewers

LEON J. WARSHAW, M.D.

Medical Director, Paramount Pictures Corporation, New York, N. Y.

ONE of the problems faced by the motion picture industry as a result of the introduction of three-dimensional films has been the shortage of the polarizing spectacles which must be worn by the audience. The magnitude of this problem is indicated by the fact that a single picture in major release will be seen by approximately 30 million theatergoers in the United States alone, each of whom must be provided with a pair of the viewers. At first there were many instances in which a theater was unable to show a three-dimensional film because the management could not obtain an adequate supply of the viewers, but these have become rare as the rate of production has increased. However, the cost of the viewers has remained relatively high, and to meet this problem, some theaters have been collecting the viewers from people as they leave the theater, reissuing them to new arrivals. When the fear was expressed that infections of the skin, scalp, or eyes might be transmitted from one person to another, an effective means of decontaminating the potentially infectious viewers was sought.

Viewers made entirely of plastic or with glass lenses mounted in plastic frames may be treated satisfactorily by immersion in germicidal solutions such as the quaternary ammonium detergents. However, some viewers achieve their polarizing effect by means of a coating on the lenses which is often removed by the washing solutions. Furthermore, this technic obviously cannot be applied to viewers with cardboard or paper frames, the type most widely used.

Germicidal lamps were discarded because it was impossible to devise a practical method which would make certain that each surface of every pair of the viewers would be exposed to the required dose of the ultraviolet rays. The common methods of sterilization by dry heat or steam under pressure could not be employed since the former melted the adhesive holding the lenses in position, leading to optical difficulties, while the latter macerated the cardboard frames. Formaldehyde vapor was considered but discarded because of the possibility that a residue of formaldehyde on the viewers might produce a contact dermatitis in sensitive individuals and because the formaldehyde odor which clung to the viewers was generally regarded as unpleasant.

A recent study demonstrating that exposure to high concentrations of ozone was a satisfactory method of reducing the bacterial contamination of dishes and cutlery [1] suggested a solution to this problem. The germicidal properties of ozone have been known for some time.[2] Relatively low concentrations have been shown to destroy bacteria,[3, 4]

the Lee strain of poliomyelitis virus,[5] and cysts of *Endameba histolytica*.[6] Its value in the purification of water supplies is generally recognized and it is used by a number of communities for this purpose. The present study is an investigation of the effectiveness of high concentrations of ozone as a means of destroying organisms with which 3-D viewers have been deliberately contaminated.* Viewers with lenses of plastic film mounted in cardboard frames were used in all experiments.

EFFECT OF OZONE ON CONTAMINATION WITH BACTERIA

Fresh cultures of *Escherichia coli, micrococcus pyogenes* var. *aureus* (hemolytic strain) and *Streptococcus pyogenes* (beta strain) were grown in fluid medium for 20 hours at 37.5° C. After being uniformly suspended in the medium, each culture was used to contaminate a series of four pairs of viewers. Using a sterile pipette, 0.1 ml. was applied to each pair and smeared over both lenses and frames by a sterile cotton swab saturated with sterile broth. At the same time an identical quantity of each culture was inoculated into fresh broth. The concentration of organisms as determined by the serial dilution and the plate count technic served to demonstrate the degree of contamination.

The contaminated viewers were sealed in a specially constructed aluminum chamber. Unfiltered room air (no attempt was made to control temperature or humidity) was forced by a motor blower through an ozone generator of the "silent" electric discharge type adjusted to produce 6.0–8.0 gm. of ozone per hour.† The stream of ozone was directed through a series of baffles to assure its even distribution. To prevent the exposure of laboratory personnel to toxic amounts of ozone, the overflow from the chamber was exhausted outside the building via flexible aluminum tubing.‡ The flow was adjusted so as to provide an ambient ozone concentration in the chamber of approximately 200 p.p.m.

Following 10 minutes of exposure to ozone, two pairs of each series of viewers were removed, the remaining pairs being treated for an additional 10 minutes. As soon as each pair was removed from the chamber, a swab sample using a standard sampling technic was inoculated directly into fresh fluid medium. Serial dilutions were made and an aliquot of each was plated out for counting of colonies and for morphologic identification. The plates were incubated at 37.5° C. and the colony counts made after 24, 48, and 96 hours indicated the degree of the residual contamination.

The results of this experiment (Table 1) demonstrate the effectiveness of ozone as a bactericidal agent. Although the concentration of the original contamination was measured in millions of organisms, only a relatively few could be found after a 10-minute exposure to ozone, and after 20 minutes the viewers were sterile.

It should be noted in passing that no attempt was made to filter contaminants out of the air which was continuously forced through the chamber for the duration of the treatment and for a short period thereafter to permit the purging of ozone before opening the chamber. Nevertheless, the usual airborne organisms must have been completely destroyed by the ozone, since no evidence of new contamination was found.

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* These studies were conducted at Biological Laboratories, Inc., Brooklyn, N. Y., under the direction of Norman Molomut, Ph.D.

† The ozone equipment used in these experiments was supplied by the Electroaire Corporation of Long Island City, N. Y.

‡ In the commercial apparatus produced by the Electroaire Corporation, the ozone in the overflow from the chamber is destroyed by passage through filters containing manganese dioxide.

TABLE 1

Bactericidal Effects of Ozone

Organism	Control (Original Contamination, i.e., 0.1 ml. of Culture) (Number of Organisms)	After Ozone Exposure (Number of Organisms)			
		10 Minutes		20 Minutes	
		No. 1	No. 2	No. 3	No. 4
E. coli	10,000,000	160	250	0	0
M. pyogenes var. *aureus* (hemolytic strain)	12,000,000	100	80	0	0
S. pyogenes (beta strain)	4,000,000	0	0	0	0

EFFECT OF OZONE ON CONTAMINATION WITH FUNGI

Fresh cultures of *Candida albicans, Trichophyton gypseum,* Microsporum hormodendrum, Microsporum lanosum, Aspergillus niger,** and *Torula rubrum* * were grown in Sabouraud's dextrose fluid medium at 28° C. for five days. The fully grown cultures were suspended uniformly in the medium in which they had grown by means of a sterile micro-homogenizer and, as in the above experiment, 0.1 ml. of each suspension was smeared over the cardboard and plastic portions of a series of four pairs of viewers. At the same time, an identical quantity of the undiluted homogenized culture was inoculated into fresh medium and, by observing the growth in serial 10-fold dilutions, the concentration of organisms in the original contamination was estimated. (For example, a culture which grew out in each tube up to the fifth in the series was assumed to represent approximately 10^5 or 100,000 organisms in the original volume of 0.1 ml.)

The viewers were placed in the treatment chamber and exposed to the same ozone concentrations used in the previous experiment. Two pairs of each series of viewers were treated for 30 minutes, the remainder for 60 minutes.

Swab samples were taken from each pair of viewers as it was removed from the chamber and inoculated into sterile broth. Then, serial 10-fold dilutions were made and incubated so that the number of organisms present could be estimated. Plates of each sample were streaked to permit morphologic identification.

The results (Table 2) demonstrate the effectiveness of high concentrations of ozone as a fungicidal agent. *Candida*

* Isolated from active human lesions.

TABLE 2

Fungicidal Effects of Ozone

Organism	Control		After Ozone Exposure			
			30 Minutes		60 Minutes	
	Last Tube in Serial 10-Fold Dilution Showing growth *	Day Growth Appeared	Last Tube in Serial 10-Fold Dilution Showing Growth *	Day Growth Appeared	Last Tube in Serial 10-Fold Dilution Showing Growth *	Day Growth Appeared
Candida albicans	7	3–5	0	–	0	–
Trichophyton gypseum	5	3–5	0	–	0	–
Microsporum lanosum	6	3–5	1†	9–10	1†	9–10
Microsporum hormodendrum	4	3–5	1†	9–10	1†	12
Aspergillus niger	5	3–5	1†	3–5	1†	12
Torula rubrum	8	1–2	3	1–2	1†	12

* Serial 10-fold dilution technic used to estimate number of organisms present; i.e., a culture which grows in the fifth tube represents approximately 10^5 or 100,000 organisms in original inoculum

† Growth was very scanty, only a few discrete colonies appearing in the broth

albicans and *Trichophyton gypseum* were completely destroyed after an exposure of 30 minutes. While the other organisms were not completely destroyed, the small number of survivors and the markedly delayed rate of growth suggests that only a few of the spore forms were able to resist the lethal effects of ozone. It would seem most improbable that contact with this degree of contamination could give rise to clinical cases of infection.

EFFECT OF OZONE ON THE OPTICAL QUALITY OF POLARIZING LENSES

The polarizing lenses being marketed are produced by one of two processes: impregnation of the polarizing crystals into the lens materials, or coating the lens surface with them. Several pairs of viewers made by each process were placed in the chamber and exposed to an ambient ozone concentration of about 2,000 p.p.m. for five hours. The lenses were examined before and after treatment for the following optical characteristics: (a) fogging of lenses; (b) optical density (percentage of light transmission); (c) sharpness of focus; and (d) angle of extinction for polarized light. No change in any of these characteristics was noted, nor was there evidence of any effect on the cardboard of the frames or on the adhesive which held the lenses in place.

DISCUSSION AND CONCLUSIONS

While the germicidal action of ozone has been recognized for many years, its practical use, with the exception of purification of water supplies, has been ignored. In 1935 Rosenau suggested its use for the sterilization of surgical dressings,[7] but there is nothing in the literature to indicate that this suggestion was ever followed.

The experiments reported above demonstrate that ozone is capable of reducing deliberate surface contamination with pure cultures of a variety of bacteria and fungi to a level which would preclude the possibility of transmitting infection by casual contact. They confirm an earlier series of observations on the ability of ozone to sanitize contaminated dishes, cutlery, and glassware.[1] Surgical sterility was not attempted, but it is possible that even this might be achieved by the use of higher concentrations or by the use of longer exposures or both. However, exposure to an ozone concentration of 200 p.p.m. for a period of 30 minutes would seem to be sufficient to eliminate the danger of spread of infection by the re-use of viewers needed for seeing three-dimensional films.

Health officials disagree as to the likelihood of spreading infection by permitting a pair of the polarizing viewers used by one individual to be reissued to another. Some have tended to minimize this possibility, feeling that it carries no greater risk than do such common practices as the trying on of frames in optometry shops, of hats in millinery and haberdashery establishments, and the rental of binoculars in "legitimate" theaters and opera houses. Conversely, in a few communities regulations have been issued declaring the re-use of 3-D viewers to be a health hazard, and prohibiting this practice. In others, the re-use is permitted provided the viewers are treated by immersion in germicidal solutions or by prolonged exposure to heat. In one city the authorities have even required such treatment of the new viewers which are to be discarded after a single use.

Since in most localities no regulations regarding the re-use of glasses have been adopted, theater managers have employed their own ingenuity in preparing the 3-D viewers for reissue. As one might expect, their methods have ranged from inserting each reclaimed pair of viewers in a glassine envelope to convey the impression that it had been cleansed and sterilized—to a thorough washing

and rinsing followed by immersion in a germicidal bath. Obviously, each theater operator is guided by the degree of his concern over the possibility of transmitting infection and the caliber of the sometimes professional, but often "semi-professional," advice he has obtained. The final result depends upon the diligence and thoroughness with which his staff has carried out his orders.

Millions of movie-goers must have worn 3-D viewers which were reissued with little or no effective germicidal treatment. Nevertheless, there have been no reports of any outbreaks of infection and there has been no apparent increase in the incidence of sporadic cases of skin, scalp, or eye infections. However, the re-use of 3-D viewers represents at least a theoretical means of spreading infection. Health officials are justified in requiring that the viewers be decontaminated or "sanitized" before being reissued, but the regulations they adopt should be based upon simple and inexpensive methods, among which exposure to ozone should be included.

SUMMARY

1. Exposure of 3-D viewers to an ambient ozone concentration of 200 p.p.m. for 20 minutes completely eliminated a deliberate contamination by pure cultures of *Escherichia coli, Micrococcus pyogenes* var. *aureus* (hemolytic strain) and *Streptococcus pyogenes* (beta strain).

2. Exposure to this concentration of ozone for 30 minutes was effective in reducing deliberate contamination by a variety of fungi to a noninfectious level.

3. Exposure to many times the above concentration of ozone had no effect on the optical quality of the polarizing lenses.

4. Exposure to an ozone atmosphere of 200 p.p.m. for 30 minutes is a satisfactory method of decontaminating or "sanitizing" 3-D viewers so that they may be re-used without fear of transmitting infection.

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Dubos, Third Annual Dyer Lecturer

"The Gold-Headed Cane in the Laboratory" was the subject of the Third Annual R. E. Dyer Lecture given at the National Institutes of Health on October 22. Selected for this honor was Rene J. Dubos, M.D., of the Rockefeller Institute for Medical Research. His interest in environmental and physiological factors in the manifestations of disease determined his choice of a subject. Traditional appreciation of these factors, which need to be defined scientifically, is symbolized by the gold-headed cane.

The Dyer award was established in 1950 by friends and colleagues of Rolla E. Dyer, M.D., to pay him tribute upon the occasion of his retirement from the Public Health Service. The Lectureship is administered by the National Institutes of Health.

In the survey reported upon, half the taverns and two of every five restaurants served their customers with glasses or cups that failed to meet the modest standard of 100 or less organisms per utensil. This is far from a comforting finding for those of us who eat in public places—as most of us must.

Field Studies on Two- and Three-Compartment Sink Manual Dishwashing

MORRIS A. SHIFFMAN, D.V.M., M.P.H.

Food and Drug Sanitation Supervisor, Bureau of Environmental Sanitation, City Department of Health, Milwaukee, Wis.

THE Public Health Service ordinance regulating eating and drinking establishments[1] recommends, where chlorine treatment is used in manual dishwashing sanitization, that a three-compartment sink be used. The first compartment is' used for washing, the second for clear rinsing, and the third for chlorine immersion. The theoretical basis for this rule is that neutralizing agents against chlorine would be carried over from the washing solution into the chlorine compartment unless a clear rinse is interspersed. Many state and municipal ordinances regulating eating and drinking establishments require or recommend that three-compartment vats be used for manual dishwashing.

Mallman, *et al.*,[2] in a series of tests made at a tavern demonstrated that at least 500 glasses can be satisfactorily sanitized in a two-compartment system with 200 p.p.m. of a hypochlorite sanitizing agent. They do recommend, however, the three-compartment setup as being better able to stand abuses and to prevent the carry-over of neutralizing agents from the wash solution to the sanitizing solution.

There is much to be said for laboratory studies in the efficiency of dishwashing methods, since most of the variables can be controlled. However, as Mallman commented (in a study on cationic sanitizing agents), "It is difficult to argue the correctness of each laboratory technique unless we resort to field testing. If, in field testing, the cationic works successfully, then it is quite evident that the laboratory technique used for routine laboratory evaluation should be that which most nearly approximates the field findings." Studies have been made at individual food establishments using restaurant personnel, but, since in these the operator was aware that he was a partner in the experiment, these can be considered to be extensions of laboratory research. The study to be reported attempts to evaluate the comparative efficiency of two- and three-compartment wash sink methods as demonstrated by results from routine food utensil sanitation surveys made at restaurants and taverns operating in a normal manner and with no previous notification.

METHOD

The Milwaukee Health Department carries on a continuous program of food utensil sanitation surveys in eating and drinking establishments. For the purpose of this study, the staff food sani-

NOTE: Laboratory work done by the Bureau of Laboratories of the Milwaukee Health Department.

TABLE 1

A Survey of the Use of Hypochlorite and Chloramine Sanitizers in Taverns and Restaurants

	Taverns						Restaurants					
			2		3				2		3	
	No. Total	Per cent	Compartment	Per cent	Compartment	Per cent	No. Total	Per cent	Compartment	Per cent	Compartment	Per cent
Hypochlorite	15	12.2	12	14.5	3	7.5	16	41.0	7	46.6	9	37.5
Chloramine	108	87.8	71	85.5	37	92.5	23	59.0	8	53.4	15	62.5
Total	123	100.0	83	100.0	40	100.0	39	100.0	15	100.0	24	100.0

tarians took samples at unselected restaurants and taverns. Glasses were sampled at the taverns and cups at the restaurants. All sampling and laboratory work was done according to the "Standard Method for the Bacteriological Examination of Food Utensils" proposed by the Subcommittee on Food Utensil Sanitation of the American Public Health Association.[3] The following information was recorded for each sample:

1. Name and type of establishment, i.e., restaurant or tavern. (Some taverns serve food; however, the type utensil recorded for the tavern is the glass and for the restaurant it is the cup.)
2. Number of utensils swabbed. This number was 10 in each case for each sample. (A total of 6,470 utensils were surveyed.)
3. Type of utensil—either cup or glass.
4. The bactericidal agent used, i.e., hypochlorite, organic chlorine, hot water at 170° F., or quaternary ammonium compound.
5. The concentration of the sanitizing agent in terms of over, or under, 100 p.p.m. of bactericide. (Where the wash vats were not set up for dishwashing at the time of inspection, the results were recorded as from stored utensils with no record of bactericide concentration.)
6. The dishwashing equipment used, i.e., two-compartment sink, three-compartment sink, mechanical dishwasher, or motor brush washer.
7. Finally, the bacterial count was recorded after the sample was completed.

Since this is a study of manual dishwashing efficiency, the results where automatic dishwashing equipment was in use are not recorded, and to reduce variables to a minimum, only results where hypochlorites or organic chloramines were used, are included. However, results were recorded from utensils in those establishments showing an adequate chlorine concentration, or inadequate concentration of chlorine, and from dry storage where there was no record of sanitizer concentration. These are conditions met with in the field.

In order to minimize the effect of one group using a higher proportion of the more efficient hypochlorites as against organic chlorines than the comparison group, a survey was made to determine what percentage of each comparison group used hypochlorites and organic chlorine compounds. (The results are presented in Table 1.) In taverns, the percentages of chloramines and hypochlorites in the two-compartment vat group and the three-compartment vat group are almost identical. In the restaurants, 46.6 per cent of the two-compartment group used hypochlorites as contrasted with 37.5 per cent of the three-compartment group. For practical purposes, however, it may be stated that we are dealing with similar groups in so far as use of hypochlorites and organic chlorines is concerned. It is interesting to note that 87.8 per cent of the taverns preferred the chloramines as contrasted to 59.0 per cent of the restaurants.

RESULTS

Table 2 compares the concentrations of hypochlorite and chloramines as used in the two-compartment vat and three-compartment vat system. Essentially, this is to demonstrate whether we are working with equivalent groups

TABLE 2

A Comparison of Bactericidal Rinse Concentrations in 2- and 3-Compartment Dishwashing Methods Using Hypochlorite and Chloramine

	Taverns				*Restaurants*			
	2 Compartment	*Per cent*	*3 Compartment*	*Per cent*	*2 Compartment*	*Per cent*	*3 Compartment*	*Per cent*
Sterile Agent > 100 p.p.m.	239	71.8	112	73.5	36	49.3	52	63.4
Sterile Agent < 100 p.p.m.	10	3.0	2	1.3	3	4.1	0	0.0
Storage	84	25.2	40	25.2	34	46.6	30	36.6
Total	333	100.0	159	100.0	73	100.0	82	100.0

when comparing the two systems. There are three groupings: (1) where the test for hypochlorite and chloramine sanitizers was above 100 p.p.m. as determined by the sodium thiosulfate starch test; (2) where the bactericidal rinse was below 100 p.p.m.; and (3) where no test was available, the sample being taken from stored dishes and the vats not set up for dishwashing.

For the tavern group, the two- and three-compartment users' figures are practically the same. Of the two-compartment group 71.8 per cent had bactericidal rinse concentrations of 100 p.p.m., or over, as compared to 73.5 per cent for the three-compartment group. The three-compartment group for restaurants had 63.4 per cent with a bactericidal rinse concentration of 100 p.p.m., or over; while the two-compartment group showed 49.3 per cent as having an adequate rinse concentration. We may accept the premise that we are dealing with essentially equivalent groups in so far as bactericidal rinse concentrations are concerned.

Table 3 is a comparison of bacterial counts as routinely sampled from eating and drinking establishments using two- and three-compartment methods for manual dishwashing. In the tavern group, operators washing glasses in two-compartment sinks performed successfully in reaching the standard of 100, or less, organisms per utensil surface in 159 instances of 333 samples (or 47.8 per cent). The three-compartment group performed successfully in 79 out of 159 samples (or 48.7 per cent). Restaurant operators washing cups in a two-compartment sink showed 42 out of 73 samples (or 57.5 per cent) to comply with the standard; while for the same group washing in a three-compartment sink, 51 out of 82 samples (or 62.2 per cent) successfully met the standard.

In neither the tavern nor the restaurant group is there a significant difference to show that the three-compartment manual dishwashing method is superior to the two-compartment method in meeting the standard of 100, or less, organisms per utensil surface (Tavern $P = < 0.70$; Restaurant $P = 0.70$). While only 48.4 per cent, or 238 of 492 samples from the tavern group complied with the standard, 60.0 per cent, or 93

TABLE 3

A Comparison of Bacterial Counts from 2- and 3-Compartment Sink Dishwashing

	Taverns				*Restaurants*			
	No.	*No. 100 or <*	*Per cent 100 or <*	*No. Over 100*	*Per cent Over 100*	*No.*	*No. 100 or <*	*Per cent 100 or <*	*No. Over 100*	*Per cent Over 100*
2 Compartment	333	159	47.8	174	52.2	73	42	57.5	31	42.5
3 Compartment	159	79	49.7	80	50.3	82	51	62.2	31	37.8
Total	492	238	48.4	254	51.6	155	93	60.0	62	40.0

TABLE 4

The Percentage of Compliance of Eating and Drinking Utensils at Standards of 100 or Less to 5,000 or More Organisms per Utensil Surface

Organisms per Utensil Surface	Per cent of Utensils that Meet the Standard							
	Glasses				Cups			
	2 Compartment		3 Compartment		2 Compartment		3 Compartment	
	Per cent	+	Per cent	+	Per cent	+	Per Cent	+
100 or <	47.8	..	49.7	..	57.5	..	62.2	..
200	55.1	7.3	57.8	8.1	58.9	1.4	65.9	3.7
300	59.0	3.9	60.3	2.5	64.4	5.5	69.6	3.7
400	62.3	3.3	62.2	1.9	64.4	0.0	72.0	2.4
500	63.8	1.5	66.0	3.8	69.9	5.5	72.0	0.0
600	66.5	2.7	67.9	1.9	69.9	0.0	72.0	0.0
700	67.1	0.6	70.4	2.5	71.3	1.4	72.0	0.0
800	67.4	0.3	71.0	0.6	72.7	1.4	72.0	0.0
900	68.3	0.9	71.6	0.6	74.1	1.4	72.0	0.0
1,000	74.9	6.6	74.1	2.5	78.2	4.1	81.8	9.8
2,000–5,000	79.1	4.2	77.3	3.2	89.2	11.0	87.9	6.1
5,000 +	100.+	21.3	99.9	22.6	100.+	11.0	100.+	12.2

out of 155 samples from the restaurant group, complied with the standard ($P = < 0.05$).

Table 4 is an extension of the original purpose of the study. The APHA Subcommittee on Food Utensil Sanitation[3] has established the standard of 100, or less, organisms per utensil surface as compliance with good dishwashing results. It may be of interest to health officials administering a program of food sanitation to see what level of compliance could be expected if the standard were lowered. Table 4 notes the compliance at different levels from 200 organisms per utensil surface to more than 5,000 organisms per utensil surface. If a standard of 1,000 organisms was set, there would still be 25.10 per cent of the tavern group and 21.80 per cent of the restaurant group washing in two-compartment sinks, and 25.90 per cent of the tavern group and 22.2 per cent of the restaurant group washing in three-compartment sinks that would not comply even with this lowered standard. At a standard of 1,000, the results for two- and three-compartment dishwashing do not differ significantly. This parallelism is shown at all the standard levels in Table 4.

When the results are compiled for the entire series combined, we find that of 647 samples of 10 utensils each of cups and glasses from restaurants and taverns that:

331, or 51.15 per cent, meet the standard of 100 organisms per utensil surface

372, or 57.49 per cent, would meet a standard of 200 organisms

427, or 65.99 per cent, would meet a standard of 500 organisms

491, or 75.88 per cent, would meet a standard of 1,000 organisms

This leaves 24.22 per cent of the entire group which would not meet the last-named standard and would show a bacterial count of over 1,000 organisms per utensil surface.

DISCUSSION

The food utensils analyzed in this series comprise samples taken routinely in a food utensil sanitation program for a municipal health department. The experiment shows no significant difference in compliance with a bacterial standard of 100, or less, organisms per utensil surface between manual dishwashing with a two-compartment sink and with a three-compartment sink. As this is a field experiment, we cannot take into account the personal efficiency of the dishwasher using these different methods. In so far as use of and concentration of bactericidal agents em-

ployed are concerned, they appear to be equivalent population groups; and since this is an unselected routine series of samples, it is fair to assume that the proprietors who use three-compartment sinks will, as a group, use no more detergent or manual effort or care than those using two-compartment sinks. In both the two-compartment group and the three-compartment groups, the restaurant operators are more efficient than tavern operators in producing utensils that meet the standard.

Since this is a field experiment, these results do not contradict the theoretical basis for three-compartment sink superiority over two-compartment sinks. However, as these sinks are used in the restaurants and the taverns in this area, there does not seem to be significant superiority; nor is there available any published data of field studies of this type that would indicate the converse.

As an outgrowth of the above study, there are presented data on the percentage of compliance when the present standard of 100, or less, organisms per utensil surface is lowered to allow a higher bacterial count tolerance. These indicate, for this area, that 50 per cent of the operators do comply with the standard as set. If the standard were lowered to as much as 200 organisms per utensil surface, 57 per cent would comply—only a 6 per cent gain. Approximately 25 per cent of the operators could not comply with a standard of 1,000 organisms per utensil surface. These represent the hard core of poor operators.

In quality control work, if a machine turned out a part that complied with the standards set for that part only 50 per cent of the time, either the machine would be improved or the standard lowered for that part. The above data suggest that there is no real gain to be derived from changing the standard. We must improve the human machine—in this case, the man washing the dishes—as well as the tools given him to do the job. If half the group can meet the standard, there is no reason why the other half should not, when employing equal diligence, meet that standard.

SUMMARY

1. In field trials derived from routine food utensil sanitation surveys, there is no significant difference found in results between establishments employing two-compartment manual dishwashing methods and those employing three-compartment methods.

2. Restaurant operators in Milwaukee are more successful in reaching the bacterial standard of 100, or less, organisms per utensil surface than are tavern operators.

3. A lowering of the bacterial standard to 200 organisms per utensil surface would not markedly increase the percentage meeting the standard. More than half of those who do not meet the present standard have counts in excess of 1,000 organisms per utensil surface.

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As it has ever been with pioneers, ingenuity is a valued asset. To this day the successful breaker of trails "makes-do" with what is at his hand. His less successful contemporary waits until all that is needful has been supplied him. Here is the story of one pioneering venture in a new field of public health.

The Weight Control Program in the Smaller Community

An Opportunity to Improve Everyday Food Habits

MINNA GUTSCH

District Nutritionist, Wisconsin State Board of Health, Green Bay, Wis.

THE heightened interest in weight reduction is reaching into the smaller community. This is due to the widespread publicity focused on the problem of excess weight. The knowledge that some people in cities with research centers have been able to reduce through weight control groups creates a demand for such programs in smaller communities.[1, 2] On the one hand is this interest, and on the other is the limited variety of professional skills and services available.

Unfortunately, there are opportunists who make themselves felt in these circumstances. They include aggressive organizations which offer attractive promotional sales schemes under the guise of assistance to groups interested in weight control. Or, there are the "organizers of the obese into groups"—for a fee. Then there are self-organized groups which become susceptible to all varieties of nostrums and fads. Finally, there are the many sorts of misinformation offered over the radio, in popular books, magazines, pamphlets, and drugstore displays and in the form of dietary fads, all geared to take advantage of the interest in weight control.

The present interest in overweight presents a motivating force which should not be left to sales schemes and faddists, for it offers a challenge to every health program, in connection with expectant motherhood, child health, industrial health, and chronic disease control, whether in an urban or rural setting.[3-4] In cooperation with local physicians, public health personnel are given an excellent opportunity to work in groups with people who have a common problem. Through information, discussion, and application, people can be helped to improve their food habits and at the same time to lose excess weight or to avoid gaining weight. People in groups can give consideration to their family food practices, can be made to see the uselessness of nostrums and fads, and can share or assist each other with their problems, successes, and failures.

In the spring of 1953, in a northeastern Wisconsin community, the district nutritionist was approached by lay women who were making plans to organize a program in group weight control which they wanted the local YWCA to sponsor. These women were exploring several questionable sources of assistance.

After conferences with the district

health officer, the city health commissioner, the president of the County Medical Society, and the executive secretary of the YWCA, it was decided that if such an activity were to be initiated, it should be guided by public health staff members, in cooperation with the County Medical Society. Since this was the first undertaking of this kind in the health district, the nutritionist worked closely with the planning coordinating, and developing of the program. A very capable lay woman interested in this service to the community assumed a great deal of responsibility for the many time-consuming details.

The County Medical Society approved the plans for group work in weight control with the provision that a written medical referral by the family physician be required for admission to the group. It was realized that help could not be offered through group work to those people with severe emotional disturbances, but it was agreed that the community interest in "losing weight together" was an unusual opportunity to help members of the group, through information and discussion, to improve their food habits while losing weight, and to understand the health hazard of those extra pounds.

The meetings, to be held at the YWCA, were announced twice in the local newspaper. About 20 to 30 registrations were expected—instead, 144 women arrived and 139 registered. It was thought that the group would decrease in size after the women learned that a written referral from the family doctor would be required for admission to the group. However, at the second meeting a week later, 118 women brought their written medical referrals, some of them stating that they had not previously seen their physician for years. They were glad to have had a physical examination and to find that their major problem was excess weight. At the third meeting, there were five new group members, and one joined the group at the sixth meeting, attending the remaining sessions. Those who attended two or more meetings totaled 124: of these, 112 were married and 12 single. Of the group, 107 were homemakers, 13 were in business, and four were in the professions. About one-third were under 40 years of age.

It was decided to keep this large group of women together during the first part of each session and then to separate them into smaller groups for discussion led by lay group leaders. Efforts were made through the review of literature and discussions to prepare the lay group leaders for their functions. Previous to each meeting, the nutritionist provided the leaders with a list of helpful questions to raise within their groups, should the discussion lag.

The need for professional consultants became apparent at the first meeting when a variety of questions were asked, some of which only practicing physicians should answer. It was possible for a local dietitian to circulate among the discussion groups to assist in deferring these questions, and the district nutritionist visited the various groups each evening.

Books and articles available at the local library for the group included: *Your Weight and Your Life* by A. L. George, M.D.; *Reduce and Stay Reduced* by N. Jolliffe, M.D.; *Food Becomes You* by R. M. Leverton, Ph.D.; and the January and April, 1953, issues of *Today's Health*. Pamphlets used included "Overweight and Underweight" from the Metropolitan Life Insurance Company; "The Wheel of Good Eating" from the American Institute of Baking; "Your Food Needs" from the Wisconsin State Board of Health; and materials prepared by the district nutritionist. Films shown were: "Losing to Win" from the Metropolitan Life Insurance Company; and "Weight Reduction

TABLE 1

Weight Loss Desired and Weight Loss Shown

No. of Persons	*Weight to Lose * Pounds*	*Range of Weight Lost Pounds*	*Mean Weight Loss † Pounds*	*No Weight Loss †*	*Weight Gain Pounds*
16	0–10	0–14	9	0	0
21	11–20	1–15	8	0	1–5
23	21–30	0–12	6	1	1–2
17	31–40	0–14	6	2	0
19	41–50	0–22	7	4	1–4 1–2
9	51–60	0–16	6	1	0
10	61–70	2–24	11	0	1–2
1	71–80	2	2	0	0
4	81–90	4–15	11	0	0
2	91–100	12–15	14	0	0
2	Over 100	19–21	20	0	0

* According to Metropolitan Life Insurance Company's Ideal Weight Tables or the family physician's recommendations

† Excluding three women attending for preventive reasons

Through Diet" prepared by M. A. Ohlson, Ph.D., and the research staff of Michigan State College.

The women were weighed before each session and they measured each other in their smaller groups on two occasions.

Throughout the series of nine meetings, nutritious foods were discussed as "high quality foods," or the "protective foods," or our "basic foods." The "Wheel of Good Eating" was used to check the foods eaten each day. Printed materials on calorie content were prepared and distributed in which foods were classified as on the "Wheel of Good Eating."

Topics discussed at the nine meetings included:

1. An explanation and interpretation of the aims of the group in weight control and a showing of the film "Losing to Win." (The lay group leader chairman and the district nutritionist present.)

2. "Choose Your Foods by the Company They Keep" with the film "Weight Reduction Through Diet" shown. (The district nutritionist.)

3. "Obesity and Its Relation to Health and Diseases." (A member of the County Medical Society.)

4 and 5. The entire evenings were devoted to "role playing" and group discussion. The women presented their successes and failures and helped each other with their food records; they exchanged their recipes; and talked over their problems of family meals, desserts, entertaining, and eating out. One woman who checked her food costs reported that the quality foods she was now eating cost less than the poor quality, high caloric foods she had been accustomed to eat.

6. "Why Do People Eat Too Much—Emotional Problems." (A member of the County Medical Society.)

7. "Making-Over Our Clothes." (A stylist—home economics teacher.)

8. "Posture, Grace, and Stretching." (A physical education teacher.)

9. Evaluation and fall plans. (The lay group leader chairman.)

Of the 124 members in the group who attended two or more meetings, five gained weight, and eight showed no weight loss (Table 1).

The amount of weight desirable to lose among members of the group varied from 0 to 133 pounds. A little over one-third of the group needed to lose 20 pounds or less. About half of the women needed to lose 40 pounds or more. It was emphasized that the average maximum weight loss should not exceed two pounds a week. The reason for this was that if weight is lost at a more rapid rate insufficient quantities of the protective foods may be provided. By increasing the consumption of protective foods, decreasing the consumption of concentrated sweet foods, and

starting the day with a good breakfast, these women found to their surprise that weight losses were possible. They stated in various ways that they felt better, found house cleaning and stair climbing easier and failed to tire as quickly as in the past.

During the nine weeks, 108 of the 124 members of the group showed a weight loss of from one to 24 pounds. Forty-three women lost 5–11 pounds and 31 lost 11–24 pounds.

TABLE 2

Weight Loss and Group Attendance

No. of Persons	*Weight Loss*	*Mean Class Attendance*
3	Preventive (None to Lose)	4
5	Gained Weight	3
8	No Weight Loss	3
	Pounds	
13	1–2	4
20	3–4	5
13	5–6	4
14	7–8	6
16	9–10	7
11	11–12	8
9	13–14	8
5	15–16	8
1	17–18	8
3	19–20	8
3	21–24	8

There appeared to be a relationship between weight loss and mean group attendance; those who attended most regularly made the best progress as shown by their weight loss. There is no way of knowing at this point whether weight losses will be maintained or how many women will continue their improved food habit pattern without group support during summer months. However, the influence and stimulus of a group with such a common interest as the need for weight control is dynamic.

This program should not be left to opportunists to exploit, but instead should be made a part of the local public health program, even in the smaller community. Cooperation and approval of the local medical society is invaluable. The medical referral required for attendance encourages the physician-patient relationship, so important in public health. The family physician is the only person who can assume the responsibility of referring patients likely to benefit from meeting with a group. On the other hand, physicians will refer patients only if assured that acceptable health information and guidance will be offered to them in line with a sound preventive program.

It is essential to have a suitable sponsoring agency and volunteers for the conduct of the work. Most communities have organizations or clubs with members who are willing and ready to assist in the development of a health activity in which people are interested. The sponsoring group may vary. It is important, however, that the group have community standing.

The smaller community has only limited professional skills to guide group activities for the improvement of everyday food habits and weight control. Often community health activities evolve around the public health nurse. But resource people from the district and state health departments usually are available to assist with planning and carrying out such projects. When this help is at hand, any community can develop flexible group projects in weight control as a part of its public health program. As more information becomes available from research center studies, the smaller community will find ways to utilize information even with its limited resources.

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A paper that can be reassuring yet carry a dire warning at the same time must have something to say to everyone. This reported experience warms though it also chills.

Public Health Aspects of the Worcester Tornado

ALEXANDER WITKOW, M.D., M.P.H., F.A.P.H.A., AND JOHN F. SMITH

Commissioner of Public Health; and Chief Sanitarian, Department of Public Health, Worcester, Mass.

IT is surprising how few problems were presented to the Worcester Department of Public Health by the Tornado of June 9, 1953. The terrifying blow which killed 92, hospitalized thousands, did 70 million dollars of property damage, and made 15,000 homeless, failed to disrupt seriously services under public health supervision.

This was probably due to the time, place, and nature of the tornado. A slight change in time or location could have caused vastly greater havoc.

Destruction was intense and complete in a narrow path a few hundred yards wide across the northeast corner of the city, a completely residential area. Ordinary dwellings were blown away, but the steel and brick newly built housing project containing 1,000 dwelling units remained standing, although severely damaged, with all windows, the roof, and parts of the structure gone. Major food centers were not involved in this area.

Assumption College had sent its students home a week earlier than usual, the City Home Farm residents were at dinner in the safest part of their buildings, and workers were not yet home at the time of the fateful three minutes of disaster.

Damage was all above the surface as opposed to an atomic bomb explosion where damage of subsurface installations would be expected.

The immediate problem was first aid and medical care of the injured. Everyone available, public health workers or not, participated and helped care for the injured.

Then came the organization of evacuation, provision of shelters, and emergency mass feeding. The administrative staff of the department, under the direction of the commissioner and acting as part of the Civil Defense Program, helped to organize these services. Fortunately, the people of the area opened their homes and hearts to take in the homeless so only 22 needed shelter the first night, and with Holy Cross and Worcester Polytech students gone for the summer, ideal shelters and mass-feeding facilities were available.

Sewer and water lines were not broken although water pressure dropped somewhat. Numerous laboratory tests of the water showed it to be safe. Debris was cleared by the Department of Public Works and burned or buried promptly. Rodents did not become a problem but insect control measures were needed at breeding places.

Inspection of contributed clothing, upholstered furniture, and mattresses

was necessary. Many of the latter were condemned as unsuitable and others were sent out for sterilization prior to being given out for use. As a matter of policy it was decided not to approve home-canned foods for distribution because of the uncertainty as to the adequacy of the canning procedures.

It was necessary to seize, condemn, and destroy all contaminated or spoiled foodstuffs in the area, to carefully inspect all food establishments, and check all refrigeration and frozen food.

A major nuisance, but not a health problem, was the all-pervading fiberglass insulation from the roof of the housing project which was forcefully blown into clothes and upholstery.

After the first shock was over, nursing shortages appeared in the hospitals. Some from the Health Department staff were assigned to relieve hospital bedside nurses working overlong hours. Public health nurses were assigned to emergency shelters for seven weeks. Nurses were also loaned to the District Nursing Society (VNA) to help cover home visits for bedside care and the Health Department took over some of the duties formerly carried out by the nonofficial agency.

The department offered assistance to the neighboring towns where public health staffs and facilities were not present. The State Health Department and the other health departments of the state unhesitatingly offered whatever help could possibly be used.

However, the cooperation and unselfishness manifested on all sides in this disaster, and the ability of individuals to meet and solve their own problems, were factors that minimized the need for service from public health agencies.

We feel that the important lesson to be learned from this experience is that our good fortune in the time, location, and character of the disaster is unlikely to be repeated in any future disaster, such as an atomic bomb explosion. Our preparations, while on the whole satisfactory for the catastrophe we faced, would probably be very inadequate for the chaos and destruction that might well follow.

THE LASKER AWARDS

"In choosing its Lasker Award winners for distinguished achievement the American Public Health Association has again selected a man who, subsequent to that selection, has been named a Nobel Prize winner. Among the 1953 Lasker Award winners announced yesterday is Dr. Hans Adolph Krebs, Professor of Biochemistry at Sheffield University in England. Only last week Dr. Krebs was announced as co-recipient with Dr. Fritz Albert Lipmann, Professor of Biochemistry at Harvard Medical School, as the 1953 Nobel Prize winner for medicine and physiology.

"In its five individual and two group awards this year the American Public Health Association has covered the field of health from the discovery of new fundamental knowledge in the laboratory to the social application of such knowledge in community living. The gold statuette of the classical Winged Victory of Samothrace, signifying victory over disease and death, is a fitting symbol for each of these ends of the bridge of health. Congratulations are in order not only to Dr. Krebs and the other 1953 Lasker Award winners but also to the American Public Health Association, which selected them, and to the Albert and Mary Lasker Foundation, which has made these awards possible."

Editorial,
New York Times, October 31, 1953.

American Journal of Public Health
and THE NATION'S HEALTH
Official Monthly Publication of the American Public Health Association, Inc.

Volume 43 December, 1953 Number 12

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HINTS FROM GENEVA

WE have stressed in earlier editorials the supreme importance of the World Health Organization as the channel for providing guidance and technical assistance to the underdeveloped areas of the world. It is important, however, to remember that as a channel for the interchange of opinion and the formulation of policies, the WHO can prove of enormous value in the self-evaluation of the programs of even the most advanced areas. An excellent example of this type of usefulness is to be found in the first report of an Expert Committee on Public Health Administration,* published nearly a year ago. This committee met under the chairmanship of Dr. Evang of Norway, and our own Professor I. V. Hiscock was rapporteur. It included also the late Dr. Joseph W. Mountin and representatives from Brazil, India, Canada, the United Kingdom, Pakistan, and Yugoslavia.

What interested the editor most in this report was its preliminary list of "health provisions," or what we should call the functions of the health department. The primary headings are six in number, but they do not by any means correspond to the basic six functions which used to be listed in the United States. They are described as "services provided directly by health authorities or jointly with other authorities."

The first heading is "Environmental" and it is particularly significant to note that the first two subheadings under this title are "Housing" and "Town and Country Planning," followed by the usual activities of sanitary authorities in regard to water and sewage, the control of insect vectors, and the control of dangerous

* *Expert Committee on Public Health Administration: First Report.* Geneva: World Health Organization Technical Report Series, No. 55. November, 1952.

trades and atmospheric pollution. Graves of Memphis, Williams of Baltimore, and Krumbiegel of Milwaukee have exerted real leadership in the housing field; but how many local health officers in the United States are seriously attempting to deal with such major health problems?

The second heading is "Personal and Social Problems"; and it is further divided to include services to the healthy (expectant mothers, children, and the aged); services for the handicapped; and services for the sick. It will be recalled that this outline covers those provided by the health department, itself, or jointly with other agencies. By far the greater proportion are provided in the United States by our hospital system and by the private practitioners of medicine and dentistry; this must and should continue to be the case. But—as Gaylord Anderson pointed out last year—the health department has a "mandate from the people" to see that the gaps in the program are duly filled. Heading three relates to the "Control of Communicable Diseases," covering isolation and quarantine regulations and epidemiology. Heading four is entitled "Health Promotion" and includes nutrition, physical education, and health education; legislation for the protection of the public health, including regulation and standardization of food and drugs; the provision of medical and sanitary supplies; analysis of vital statistics, surveys, and appraisal of results attained.

Title five relates to professional education (for which the health department is not responsible in the United States). Section six provides for research, as exemplified in the United States by the splendid work of the National Institutes of Health and by the activities of such state deparments of health as those of New York and Massachusetts.

It is believed that a prayerful consideration of this functional classification—and its implications—would be highly stimulating to the health administrators of the United States, quite as much as to those of Thailand and Iran.

Finally, it is of interest to note that while health education designed to bring specific information to the individual appears under basic functions, there is a special later section of the committee report dealing with the much broader aspects of health education aimed at securing "Popular Participation in Health Work." The WHO is based on the principle of voluntary cooperation in a common cause; and the future success of the public health movement within any country, including the United States, depends not on dictation from above, but on joint planning in which the men and women of the local community actually participate.

PARSIMONY ON A GLOBAL SCALE

THE problem of promoting public health, agricultural production, and economic recovery in the less fortunate areas of the world is probably the most basic factor in our efforts to build a stable and a peaceful world.

So far as health is concerned, the United States contributes to this objective in two ways—by its direct support of the WHO and by its appropriations to the over-all Technical Assistance program of the UN—a proportion of which is assigned to health promotion. Both of these approaches are threatened by recent attitudes displayed by Congress.

The more important financial data concerning the WHO are as follows: The

total assessment against all members of the Organization in 1948 amounted to $4,800,000, of which the United States contributed about 39 per cent. With the growth of the Organization and the demands on its resources, this figure rose to $8,600,000 in 1952, with the United States proportion reduced to one-third of the total. The latter ratio has been agreed upon as the maximum proportion of the total budget to be supplied by the United States in the future. This seems a fair ratio; but, unfortunately, Congress has also established for the future a ceiling of $3,000,000 a year for the United States contribution, thus freezing the total budget of the WHO at $9,000,000. This is about twice the annual health budget of a large American city. It is wholly inadequate for planning our global strategy in the war against disease and for advice and assistance to underdeveloped countries in carrying out their part in this program.

The work of the WHO in providing reliable international statistics in the standardization of pharmaceuticals, the development of international quarantine regulations and, particularly, in the development of sound methods and practices in the various technical fields of public health, and in the provision of trained and skilled personnel for the guidance of health programs in underdeveloped areas is obviously essential; on the other hand, it is abundantly clear that health programs in underdeveloped areas can seldom be carried out effectively without corresponding programs for an increase in agricultural production, progress in industrial development and intelligent efforts for mass education. The program of public health in such areas requires, therefore, a parallel stimulation in the other fields mentioned. To promote such correlation is the function of the Technical Assistance Board of the UN, on which UNESCO, FAO, and other special organs of the UN are represented. Of the funds allotted by the Technical Assistance Board, 21 per cent are allocated to public health. As public health workers, therefore, we are interested not only in the WHO but in the Technical Assistance program. The budget for Technical Assistance was set at approximately $25,000,000 for 1953, as desirable; but the parsimony of Congress has even more seriously crippled this essential program. The general understanding has been that the United States should contribute 60 per cent of this total fund, a very reasonable proportion in view not only of the relative resources of the United States, but because the whole inception of the Technical Assistance program was due to our government. Repeatedly, representatives of the United States, notably Henry Ford, 2nd, at the UN meetings in October, pledged support to this program. President Eisenhower submitted to Congress a request for nearly $13,000,000 for our contribution in 1954, yet Congress cut this figure to $8,500,000—of which part must be used for our unfulfilled obligation of 1953. A more shocking betrayal of our moral obligations could scarcely be imagined.

We strongly urge every one of our readers to write to his senator and to his representative (before the convening of Congress in January) in protest against this action and in favor of far more ample contributions by the United States to both the WHO and the Technical Assistance programs. Ten cents per capita from the citizens of the United States would place both the WHO and the Technical Assistance program on a sound basis. The cost of three postage stamps a year would not, we believe, be grudged by any but the most benighted citizen. There is no other way in which we could spend this money more effectively in the promotion of world peace and world solidarity than by this action.

COURTESY AND VERACITY

NOW that we are cooperatively engaged in international health work, it seems particularly important that we should avoid undue boasting as to our own achievements, which, if reiterated, may seriously offend the sensibilities of other nations. It is also rather important that, if we do boast, the boasting should be based on facts.

We often hear the statement made by Americans that "we are the healthiest nation in the world"! This is, unfortunately, not so.

The only generally available measure of "healthiness" which is available on a statistical basis is the death rate. The latest comparative figures available (in most instances for 1952, but in two instances for 1951) show a death rate of 9.6 for the United States. Omitting certain very small nations and those whose statistics may be of doubtful value, there are at least four nations with records substantially better than ours. They are: Canada (9.0), Denmark (8.8), Norway (8.3), and the Netherlands (7.3). The record of Denmark, Norway, and the Netherlands is truly remarkable. To know "how they get that way" one should read the response of Dr. J. Frandsen, director-general of the Danish National Health Service, on the occasion of his well deserved receipt of the Leon Bernard Foundation Award of the World Health Organization.[1] In this address he cites the tuberculosis death rate as 11 per 100,000, as compared with ours of 16. We have much to learn from our friends in northwestern Europe.

[1] *Chronicle WHO.* 7:179 (July-Aug., Special Number), 1953.

CUTTING OUT THE MARINE HOSPITALS?

THE newspapers have given little attention to a proposal that the hospitals administered by the Public Health Service should be discontinued. As everyone interested in public health knows, hospital service for merchant seamen, beginning in 1798, was one of the first medical activities undertaken by our national government. It seems that as a possible economy measure the Department of Health, Education and Welfare was asked last spring by the Budget Bureau to give study and consideration to whether this branch of the department's activities could not be terminated.

Merchant seamen now constitute about half of the patients of the "Marine Hospitals." Legal authority has been given to care for certain other categories of persons. What would happen to the 6,000 persons who, on the average day last year, occupied beds in the 16 marine hospitals, widely distributed throughout the country, chiefly near major ports of entry? The question of providing service to these persons in other federal hospitals, or in civilian hospitals, is one of the issues involved. Most of the newspaper discussion thus far has turned on this point.

There is another issue to which public health people especially must give thought. In the distinguished history of the Public Health Service, marine hospitals have provided the chief "port of entry" for physicians into the Public Health Service itself. The undergraduate training of the physician is for clinical work; the average internship confirms this emphasis. Few young medical men in general hospitals of the country acquire any background which would lead them to be

interested in the public health field. The public health profession faces no more important problem than that of recruiting medical men of ability.

If the Public Health Service had no hospital division, it might be seriously handicapped in obtaining personnel which it must have for national service through which all states and localities benefit. Long experience has shown that entry into the Service is easiest *via* the route where the well trained young doctor can find an internship or a residency in a marine hospital. Subsequently, interest often develops in public health work as such—an interest which rarely would be possible to elicit from most medical school graduates, or from interns, or from physicians already in practice.

The Public Health Service is not only—as we have often said—the Nation's General Staff for Health. It is also a seedbed for leaders in public health work under the auspices of state and local governments and voluntary health agencies.

These considerations mean to us that very careful thought, indeed, must be given before the marine hospitals should be abandoned and the Public Health Service be deprived of an important, perhaps a major element in maintaining the effectiveness which has distinguished it.

LETTER TO THE EDITOR

TO THE EDITOR:

We are appreciative of the statement made editorially (*American Journal of Public Health*, 36, 5:531, May, 1946) which pointed out that no single individual has ever taught so many public health workers so much as Dr. Milton J. Rosenau. His students and associates since 1890 when he entered the U. S. Public Health Service, and especially those he influenced during his creative years at Harvard, have carried his name and his impact to the far corners of the world. His well known text on *Preventive Medicine and Hygiene* proved an Open Sesame to him in his world travels, as had prior works of his prototype, Edward Jenner, more than a hundred years before.

When Dr. Rosenau died in 1946 he was serving as president-elect of the American Public Health Association and as a member of its Executive Board and Governing Council. It is appropriate, therefore, that we should have associated with us at Harvard University all of the surviving past presidents of the American Public Health Association as we announce the establishment of the Milton J. Rosenau Memorial Fund at the Harvard School of Public Health. This fund will be used to advance the cause of public health teaching, research, and service in keeping with Dr. Rosenau's lifetime devotion to the field.

As we thus invite the readers of the *American Journal of Public Health* to contribute to this living memorial to a great teacher, we recall his masterly statement of the goals of preventive medicine:

> Preventive medicine dreams of a time when there shall be enough for all, and every man shall bear his share of labor in accordance with his ability, and every man shall possess sufficient for the needs of his body and the demands of health. These things he shall have as a matter of justice and not of charity.
>
> Preventive medicine dreams of a time when there shall be no unnecessary suffering and no premature deaths; when the welfare of the people shall be our highest concern; when humanity and mercy shall replace greed and selfishness; and it dreams that all

these things will be accomplished through the wisdom of man. Preventive medicine dreams of these things, not with the hope that we, individually, may participate in them, but with the joy that we may aid in their coming to those who shall live after us. When young men have vision the dreams of old men come true.

Contributions in any amount may be made payable to Harvard University and sent to the Secretary, Harvard School of Public Health, 55 Shattuck St., Boston 15, Mass.

CHARLES F. WILINSKY, M.D.,
Chairman, Rosenau Memorial Fund Committee

JAMES STEVENS SIMMONS, M.D.,
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November 6, 1953.

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STATUS OF STATE MEDICAL CARE PLANS

It has been some years since the well known studies by Gertrude Sturges, M.D., of state and local programs of medical care for public assistance recipients provided a picture of the status and problems of such programs. *General Aspects of Medical Assistance,* the first of a new series of reports on the role of the state public assistance agencies in medical care by Pearl Bierman, medical care consultant of the American Public Welfare Association, has just appeared. It offers somewhat discouraging but important information as to the current status of state medical care plans for the needy.

There has been surprisingly little change during the past decade or two. Only three-fourths of the states have some level of financial participation in medical care, and, of these, only one-third have organized professional staff to carry out the responsibilities of the program. Organized advisory committees, in fewer than a third of the states, offer professional or technical counsel to the state welfare agencies in regard to the problems of the medical needs of public assistance recipients.

It is to be hoped that wide reading of this report and the series to follow, set against a background of the statement of the Joint Committee on Medical Care of the American Public Health Association and the American Public Welfare Association, "Tax-Supported Medical Care for the Needy," will provide community health workers, as well as the community at large, with a sharp focus for a major community health effort—the provision of essential, well rounded medical care services to the indigent and the medically indigent.

Copies of *General Aspects of Medical Assistance* are available from the American Public Welfare Association, 1313 East 60th St., Chicago 37, Ill.; 20 cents, discount for quantity orders.

RHODE ISLAND REPORTS ON OLD AGE

The Governor's Commission to Study Problems of the Aged created by the General Assembly of Rhode Island in 1951 has now issued its report. "Men and women over 65 think and feel as others do. . . . They have no desire to be idle, isolated, or handicapped." The report includes a recommended coordinated program for the state. The 42 statistical tables are based upon personal interviews carried out by interviewers of the U. S. Bureau of the Census among a sample of one in 35 of the nearly 75,000 persons over 65.

Among the recommendations are a permanent Commission on Aging with a subcommittee on geriatrics, a vocational rehabilitation and placement program, extension of old age and survivors insurance to all gainfully employed, research on housing for the aged with experimentation in congregate housing, a recreation program, and continued research chiefly in the colleges and universities of the state.

This survey report should be suggestive for other states planning to survey the problem of the aged. *Old Age in Rhode Island.* The Governor's Commission to Study Problems of the Aged, 24 Mason St., Providence, R. I.

MINNESOTA'S CHILD HEALTH GOALS

That They May Live is a challenge to the community by the Minnesota Department of Health's maternal and child health section to promote and maintain the health of Minnesota mothers and children. It is an outline of what has been done and still needs to be done to decrease further the infant and maternal mortality rate. Many suggestions for community programs geared to this goal are given. It is an attractive, readable booklet that should give the citizen many ideas as to his part in a child health program, as well as giving him information on the resources already developed. University of Minnesota Campus, Minneapolis 14, Minn.

KNOWING YOUR RESOURCES

The Community Welfare Council of Milwaukee County has made a significant contribution to the job of cooperation and coordination in the publication of *Here's Your Answer*. This is a directory of health resources of the county, the preparation of which was a cooperative venture, all supplying information and many furnishing supplies or services. Assembling was done largely by volunteers.

The first edition of this Guide to Health Education Resources, Milwaukee County, in 1951, listed 37 agencies; the present guide lists 50 agencies with health education facilities. The guide was prepared by a Health Education Committee with Alice H. Sanders of the Health Division serving as staff consultant, 606 E. Wisconsin Avenue, Milwaukee 2, Wis.

PHILADELPHIA'S NEW QUARTERLY

To match the reorganization of the city's health services and "the profound changes which have visited the Philadelphia scene since January of 1952," the Philadelphia Health Department has begun the publication of a quarterly, *Public Health Views*, with an autumn issue of 1953. It is published reportedly, "in the interest of public information and to develop community participation in the health program." Vol. I, No. 1, is a handsome illustration of the printing art and it has a varied list of articles on public health problems by community health leaders in and out of the department.

Norman R. Ingraham, M.D., is acting commissioner of health during absence on military leave of the commissioner, James P. Dixon, M.D. 619 City Hall Annex, Philadelphia 7, Pa.

A LONG VIEW OF CHILD HEALTH WORK

Now They Live, a new booklet published by the New York City Department of Health, is the story of the department's program for infant health and child care during the 45 years of the life of its Bureau of Maternal and Child Health Services. It reports that New York was the first city in the world "to establish a separate unit of government to concern itself with the needs of mothers and children."

Written by Leona Baumgartner, M.D., perhaps as a swan song before her resignation as assistant commissioner in charge of Maternal and Child Health Services, *Now They Live* details the changing concepts and changing needs of a child health program. Winning the war against infant summer diarrhea, against the filth diseases, against the communicable and nutritional diseases of childhood, and against maternal mortality in the early years of the present century are described in simple, interesting language that makes the history come alive for the nontechnical reader. The revolution in school health, the growth of well baby conferences with their emphasis on mental hygiene, the care of the premature baby, accident prevention, dental hygiene, and care of the handicapped have followed in the later years; and during the entire period a gradual decentralization

of the department's activities bringing them into ever more intimate relation with the people they serve.

Among the cardinal points of Dr. Baumgartner's story are that "progress is the result of people"—"professional leadership of high quality and imaginative research"; that the job to be done changes from year to year following the pattern of social and economic progress; and that the continuing cooperation of voluntary and official agencies is a prerequisite for success.

One word more! The author did not have too great a pride of authorship to get the editorial help of a publicist in developing a text and format designed for wide lay readership.

WORTH ACQUIRING

The Truth About Fluoridation, as distributed by the American Dental Association, tells the story of the pros and cons of fluoridating a water supply for reduction in tooth decay through reprinting a series of articles that appeared in the *Cincinnati Enquirer* last March. Al Schottelkotte was the feature writer and Cincinnati was the city involved. It is quite obvious that Mr. Schottelkotte, after assembling his data, thought that fluoridation of the Cincinnati water supply was a sensible and reasonable move. Copies from the ADA, 222 E. Superior Street, Chicago 11, Ill.

Management of Chancroid, Granuloma Inguinale, and Lymphogranuloma Venereum is the second edition of the publication issued in 1943 as Supplement No. 19 to the *Journal of Venereal Disease Information*. It has been completely revised to include the latest methods since the advent of the antibiotic drugs. Written by Robert B. Greenblatt, M.D., in collaboration with several of his colleagues, this booklet is designed as a medical reference work for chancroid, granuloma inguinale, and lymphogranuloma venereum.

This 66-page, well illustrated booklet describes in detail the etiology, incubation period, epidemiology, clinical signs and symptoms, clinical course, diagnosis, and treatment of these venereal diseases. It includes disease incidence, as well as data on the comparative efficacy of various therapeutic methods. A special section is concerned with differential diagnosis. The bibliography offers a comprehensive survey of the literature on the venereal diseases under discussion.

Complimentary copies are available for private physicians on request. Quantities from Government Printing Office, Washington 25, D. C. Public Health Service Publication No. 255, 30¢; 25 per cent reduction for 100 or more.

Proceedings of National Food and Nutrition Institute is the report of a conference that "gave perspective to a wide range of problems, each related to nutritional betterment of our people." Joint sponsors were the U. S. Department of Agriculture, National Institutes of Health, the Food and Nutrition Board of the National Research Council, and the Interagency Committee on Nutrition and School Lunch made up of some dozen federal agencies, the Red Cross, and the North American office of the UN's Food and Agricultural Administration.

The volume is made up of 19 papers and summaries of the discussions of 7 workshops into which the 300 participants grouped themselves. Gov. Ptg. Office, Washington 25, D. C.; 65¢.

ANNUAL REPORTS

Seventy-first Annual Report, Detroit Department of Health, 1952 is a fully detailed report of the activities of the health department of one of the largest cities in the United States. In Detroit the Health Department is responsible also for the operation of the 1,200 bed municipal hospital for tuberculosis, com-

municable disease, and obstetrical service.

Among the special activities reported are legislative appropriations for increasing the number of hospital beds for tuberculosis at the Herman Kiefer Hospital, a new health center dedicated in honor of the late Commissioner Bruce H. Douglas, M.D., and, in collaboration with other governmental agencies, a narcotic clinic for the rehabilitation and guidance of narcotic addicts.

Also reported, in response to the general consensus "that health departments ought to take an aggressive position in promoting the development of rehabilitation institutes," is a new Rehabilitation Institute. Although located on the grounds of the Herman Kiefer Hospital, it is an independent agency, the development of which the health department actively promoted for several years.

Joseph G. Molner, M.D. is Detroit's health commissioner.

Annual Report, State of Illinois, Department of Public Health is for the period ending June 30, 1952. It is a handsome example of the printer's art. A separate aspect of health department activities is described, including pictures, on each of 29 pages. These descriptions should give the citizen a real understanding of the many services provided through his state health department. One misses, however, any evidence that the State Health Department is stimulating extension of and greater responsibility by local health departments. No mention is made of the ways in which communities may create local health departments through the provisions of the 1947 Searcy-Clabaugh laws.

The 1952 annual report of the *East York-Leaside Health Unit* in Ontario is an interesting illustration of the art of annual reporting. Maps are used to show the location of schools and related facilities with which the Health Department cooperates. On the health unit staff of these two towns with a population of nearly 80,000, there were 16 public health nurses. William Mosley, M.D., Dr. P. H., is health officer, East York Municipal Bldg., Toronto 6, Ontario, Canada.

New York's Health, 1951: A Progress Report is the recently published brief report of the New York State Health Department for 1951. Its outstanding characteristic is its pleasing appearance, the result of good type and paper, effective use of color and illustration. In content there is a thumbnail sketch of some 16 separate phases of the department's activities, a good illustration of the variety of community affairs upon which public health has an effect. A reading of the report would indicate that the Empire State has its public health problems well in hand.

Health Report 1951–52 is the report of the official health services in Los Angeles, the fourth largest city in the United States. Its 1951–1952 crisis was the winter flood which tested its disaster civil defense and found it not wanting, apparently.

The report is brief, liberally illustrated, with unusually clear photographs and charts, and is written for the citizen rather than the technical expert. It should be a valuable help in maintaining community support for the department's services.

The Story of Twenty Million Pamphlets, rather than an annual or periodical report, is a justifiable pointing with pride to an 18-year record of giving the American people what one writer has called "a brief introduction to the social sciences." Since its organization in 1936, the Public Affairs Committee has published 199 pamphlets—and No. 200 is on the way—on a multitude of

public subjects ranging from *South Africa Today* to *Your Neighbor's Health Is Your Business*. More than a third of the pamphlets are still in current distribution. And of these about one-half are on subjects closely related to public health.

A total of 20,000,000 copies had been distributed by October, 1953. The most popular of the 199 pamphlets is *The Races of Mankind* (No. 85) with nearly a million copies distributed. *Blood—Your Gift of Life* by Alton Blakeslee is second in popularity with nearly three-quarters of a million distributed. Among the 13 with a circulation of more than 250,000 are *Facing the Facts About Cancer, Epilepsy—The Ghost Is Out of the Closet, Building Your Marriage, Toward Mental Health, Rheumatic Fever—Childhood's Greatest Enemy*, and *How to Tell Your Child About Sex*.

The 18-year report is handsomely produced and illustrated. It reports on a relatively new field for distribution—through racks in industrial plants. In the past year nearly 600,000 pamphlets were distributed in this way. The report also includes a selection from the committee's "fan" mail commending "one of the valuable media of public education."

Public Affairs Committee, 22 East 38th St., New York 16, N. Y.

1952 Annual Report is, according to the president of the National Foundation for Infantile Paralysis, Basil O'Connor, "statistics incorporated in a very human story of patients and people." The year 1952 set a new record for number of polio cases in the United States—57,628, or about a third more than in 1949, the previous record. But 1952 was also the year of hope when gamma globulin promised some hope of protection against paralytic polio and when the hope of ultimate conquest of polio was brighter than it had ever been. Of more than $36,000,000 spent by the national and chapter offices, nearly $25,000,000 was expanded for patient care.

The report is a moving story of where we are in the war against polio. National Foundation for Infantile Paralysis, 120 Broadway, New York 5.

Designed for Health is the 1952 annual report of the Santa Clara (Calif.) County Health Department. During this year the county's new half-million-dollar health center was completed. Varied photographs of the department's activities should help to give citizens a concrete picture of their community health services. Some of the growing and changing problems of a health department in a fast-growing area are illustrated by the fact that the department's Sanitation Division gave health approval to 92 new city subdivisions, including more than 5,200 building lots.

W. Elwyn Turner, M.D., M.P.H., is director of public health, San Jose 28, Calif.

The Rockefeller Foundation: Annual Report, 1952 reports appropriations in 1952 of $16,640,355, more than one-fifth of which was for work in public health and medicine and more than a quarter for the social sciences.

In the 40 years of the foundation's existence, nearly half a million dollars has been expended, the lion's share of nearly two-thirds devoted to public health and medical sciences. More than 100 grants-in-aid were made to research workers or institutions in 32 countries and the United States. The Rockefeller Foundation, 49 West 49th St., New York, N. Y.

BOOKS AND REPORTS

All reviews are prepared on invitation. Unsolicited reviews cannot be accepted.

Paths of Loneliness: The Individual Isolated in Modern Society— *By Margaret Mary Wood. New York: Columbia University Press,* 1953. 224 pp. Price, $3.75.

This book deals with the problem of the individual who feels unrelated to others of his own group. The changes which are taking place in modern society, the author feels, are tending "to break down the old patterns of relationships on which the individual depends for inner security more rapidly than he is able to construct a new pattern that will satisfy his sense of purpose and belonging." As a result he feels frustrated, adrift, and alone and serious behavior problems result.

The author, a professor of social studies, approaches this problem as a social scientist, drawing on psychology, sociology, and anthropology in her presentation. The first part of the book discusses the forces in society which tend to isolate one man from another, and the second part analyzes some of the ways lonely individuals react to isolation.

In the first part are covered such subjects as the individual separated from his family, the person isolated in the presence of contacts, and presents the idea that social relationships tend to fall into the categories of interest relations and sentiment relations. With the isolate it is the sentiment relations which are most seriously affected. Further chapters discuss the isolation which comes from sex differentiation which contribute to social barriers, mobility creating loneliness, and singleness which the author believes affects sentiment relations more than interest relations. Other factors, such as age, power, the experience of the child in the family, the handicapped child, the unemployed, the person with authority, the genius, and those in conflict with society, are discussed in an interesting manner.

Perhaps the chapter of greatest value to public health workers is the one on "Victims of the Evil Eye," or the cultural beliefs in relation to sickness and physical handicaps. The author gives vivid descriptions of these beliefs as they relate to leprosy, syphilis, tuberculosis, the mentally ill, and the physically handicapped, such as the deformed, deaf, and blind. Colorful quotations are used to clarify this concept.

In discussing the way lonely individuals react, the latter chapters present material on the persons who wander or prowl as a means of escape from the strain of social relations and, although they experience the thrill of freedom from responsibility and the joy of discovery, they have a sense of loneliness because of no home and no family ties. The lonely egotist is another form of retreat and a way of attracting attention; the sense of isolation of the mentally disordered; the use of aspirin and alcohol as a means of securing relief from pain and emotional tensions; the suicide's motive of escape, are different routes used to escape from isolation engendered by a sense of insecurity and inferiority. Some ideas are expressed about the problem in class structure and the value of service to others as a compensating method. Finally, the responsibility of the group to assist the isolated individual to establish satisfying relationships is stressed.

This book is written in an easy style. The subjects are treated interestingly but somewhat superficially. For persons who have not read much material from the social sciences, or for those who wish an integration of various points of view on this subject, it will serve as an interesting presentation.

ELIZABETH P. RICE

An Introduction to Public Health—*By Harry S. Mustard (3rd ed). New York: Macmillan,* 1953. 315 pp. Price, $4.25.

This new edition, similar to its predecessor, will continue to serve as a useful introduction to public health. The author's own orientation is reflected in an excellent panorama of the whole field. The reader senses the philosophy and spirit of progressively evolving public health practice. The added chapters on public health education and mental health are readable and informative. The chapter on medical care gives a particularly well balanced discussion of the pros and cons of private and public medical practice. Regrettable is the lack of an extensive discussion of the study of disease by epidemiological methods, together with the method of determining statistical significance; also noted is the absence of reference to the expanding scope and function of a modern public health laboratory. The older chapters reveal several slight errors and misstatements that detract somewhat from the value of the book as a reference standard. The author has described certain methods in perhaps too much detail for a book that is not intended to be a technical guide. However, for persons contemplating the adoption of careers in public health, including those entering through the specialties, this treatise is valuable. To both professionals and laymen desiring to understand better the relationship of public health practice to medicine and its associated sciences and to welfare and education, this volume will prove useful. Those who are associated with voluntary health organizations or who are interested in cooperating with community health endeavors will also profit by reading this book.

ALBERT H. HARRIS

Swimming Pool Data & Reference Annual 1953 *(21st ed.)—New York: Hoffman, Harris,* 1953. 154 pp. Price, $3.00.

The twenty-first edition of this volume, like the preceding issues, contains several articles of a general nature on the design, construction, and operation of swimming pools. The articles in this issue are written almost exclusively by representatives of commercial organizations selling a particular commodity. Official public health agencies are not represented among the authors of articles. Perhaps the most important part of the *Annual* is the extensive advertising section taking up about two-thirds of the pages of the publication. These advertisements cover everything from athlete's foot preventives to consulting engineering services.

FRANCIS B. ELDER

Modern Concepts of Communicable Disease—*By Morris Greenberg and Anna V. Matz. New York: Putnam's,* 1953. 567 pp. Price, $6.20.

According to its cover jacket—and the statement is confirmed both in the preface and content—this volume is designed for "medical and nursing students, physicians, nurses and all health workers." This all-inclusive objective is perhaps the book's greatest liability, for it is difficult to state objectively just where it succeeds and where it fails in meeting the specific need of so many types of professional workers. Although each one of the groups named can benefit from knowing all the material—and it is altogether readable—nevertheless, sub-

ject matter that is primarily directed at student nurses studying at an undergraduate level is hardly the same as that to be directed at the medical student four years their senior or postdoctoral candidates, still more experienced ,studying for an advanced degree. The three levels of education represent wholly different academic audiences, and by the time the subject matter is made to include professional details of clinical and preventive medicine, nursing, epidemiology, and public health practice the scope has become precariously wide.

Part I covers the historical development of medicine, principles of epidemiology, public health practice, bacteriology, immunology, allergy, treatment, hospital and home management of infections and nursing care—too much to cover satisfactorily in 134 pages. Thirteen pages (including 43 photographs) are devoted to gown technics; five to epidemiology and 17 to health agencies.

Part II presents in some 300 pages of text a description of specific communicable diseases according to causative agents, susceptible hosts, and favorable environments. However, the term host, as used throughout Part II, is for the most part synonomous with clinical reactions and symptomatology rather than with host susceptibility. Thus, the chapter on scabies describes the Sarcoptes as the agent; "crowding and lack of cleanliness" as the environmental determinants; while symptomatology—nocturnal itching and the like—and diagnosis make up the paragraphs given under the title of "The Host."

This is the type of book that bothers the reviewer more than the purchaser—the former is put to it to evaluate it for all the different groups mentioned above; the latter can easily determine whether to purchase the volume after momentarily skimming through the pages. The advanced student will find the subject matter somewhat dilute and the references often spotty. References for the chapter on poliomyelitis, for example, do not include publications by Enders, Sabin, Hammond, Salk, Howe, Langmuir, or Aycock.

THEODORE H. INGALLS

Children of Divorce—*By J. Louise Despert. New York: Doubleday,* 1953. 282 pp. Price, $3.50.

The author announces that one of her purposes is "to help save marriages—the marriages of children whose parents have failed at marriage." During a period of 20 years, a study of more than a thousand children revealed that the proportion of disturbed children of divorced parents was smaller than of the general population. This led her to the distinction between emotional and legal divorce. The latter is always preceded by the former, but does not always follow upon the former.

A disturbed relationship between his parents results in a disturbed child, whether divorce comes or not. Thus, this book is a warning to parents to consider their children not at the point of divorce but at the point of trouble between themselves. Children have been hurt a long time before the divorce.

On the other hand, the book also carries an assurance to parents that if a divorce is inevitable, it should not be delayed in the mistaken notion that such a course is wisest for the children. The proper handling of the divorce with a knowledge of its impact upon the child is far better than an emotional divorce that tries to pretend all is serene. Suppressed tension between parents is far more damaging than an open break, with children understanding what is happening and something of the reasons why.

A wealth of illustrative case histories are suggestive as to the ways parents can help themselves and their children through the special crises and everyday

problems of divorce. A subtitle for the book might be "How to Make Divorce Successful"—if divorce there must be.

MARTHA LUGINBUHL

Starch—Its Sources, Production and Uses—*By Charles A. Brautlecht. New York: Reinhold,* 1953. 408 pp. Price, $10.00.

This book presents a great deal of basic technical information on starch, starch products, and by-products, including manufacturing processes, sources of raw materials, specifications, methods of analysis, and production figures. It lists briefly the manifold uses of starch and starch products in the manufacture of food, paper, textiles, adhesives, and related products. Following an introductory chapter and a chapter on the physical structure and microscopic identification of starch from various sources (with 12 photomicrographs), the author presents four chapters dealing with the industrial production of potatoes, the processes of manufacturing potato starch, specifications for potato starch, and the manufacture of other potato products. Succeeding chapters deal systematically and comprehensively with starch from sweet potatoes, corn, tapioca, wheat, rice, sago, arrowroot, and other sources; dextrin, glucose, and caramel; the uses of starch, and starch analysis. The final chapter by Owen A. Moe of General Mills, Inc., summarizes the more scientific aspects of the physical and chemical characteristics of starch and its derivatives.

In his discussion of manufacturing processes, the author includes a consideration of product specifications, impurities, water supply, and waste disposal. The essential historical facts are mentioned and the reviewer was interested to learn that the ancient Egyptians used wheat starch to stiffen the linen for their mummies and size their papyrus. Production figures and trade statistics are included in most of the chapters.

The book will form a valuable source of reference for all concerned with the technical fields that it covers. Its author is professor emeritus of chemistry and chemical engineering at the University of Maine.

A. HUGHES BRYAN

The Normal Child: Some Problems of the First Three Years and Their Treatment—*By Ronald S. Illingworth. Boston, Mass.: Little, Brown,* 1953. 342 pp. Price, $6.00.

This in an important book. In a mere 342 pages it covers an encyclopedic range of topics, and covers them thoroughly, systematically, and with a fine sense of what physicians need to know.

The author is clear in his statement of intent, which is "to describe the problems other than disease which arise in the normal child in his first three years . . . variations which cause a great deal of worry to the parents and which if improperly managed may cause a great deal of suffering to children."

There are four sections: Feeding Problems, Physical Problems, Developmental Problems, and Behavior Problems. The index is full and well organized. The bibliography of 335 titles is not as useful as it might be because it, unfortunately, adopts the British method of citing author, journal, volume, and year, but omitting titles of articles.

On controversial points (and there are many) the author cites pertinent research or opinion, carefully balances the evidence, states his own convictions, and then summarizes. He does not hesitate to say "This is not wha' I have found," or to call attention to the weakness of the evidence, but his opinions are always measured, and consistently mirror his own wide experience and his familiarity with a large body of literature. The documentation is impressive.

There are a few minor criticisms which might be leveled, such as the lighthearted confidence with which the author attributes some kinds of behavior to "in-

herited characteristics," and a few other points, but these are trivial by comparison with the scholarly presentation as a whole. The book's admirable combination of comprehensiveness and conciseness will make it useful to busy physicians. NINA RIDENOUR

Chemical Analysis of Industrial Solvents—*By Morris B. Jacobs and Leopold Scheflan. New York: Interscience Publishers,* 1953. 501 pp. Price, $10.00.

This volume will have considerable reference value to anyone requiring a well organized over-all approach to solvent analysis. It consolidates and summarizes a considerable amount of technical information which would otherwise be widely scattered. Specification testing occupies a considerable amount of space. There are two chapters that would be of interest to personnel engaged in industrial health work. Chapter IV discusses "Physiological Effects of Industrial Solvents," and Chapter V describes "General Methods for the Determination of Solvent Vapors." These chapters are essentially noncritical in presentation and lack the detail sought by those actively engaged in industrial hygiene chemistry. Some of the material presented is not as current as might be expected in a new book. For example, the maximum allowable concentrations listed are for 1945 to 1948, and no suggestion is made that the user consult the latest revision. CLYDE M. BERRY

The Psychiatrist and the Law—*By Winfred Overholser. New York: Harcourt Brace,* 1953. 147 pp. Price, $3.50.

In this little book Dr. Overholser sets about the task of contributing "to a closer understanding and cooperation between the practitioners of the law and of psychiatry." For psychiatrists, Part I is rather elementary and could be skimmed rapidly without loss. Parts II, III, and IV, however, are worthy of close attention for any psychiatrist, and for a lawyer, an understanding of them would have to be based upon careful attention to Part I. For both psychiatrists and lawyers, this book should be profitable; for the former to learn how far behind his science the law has lagged; for the latter to learn why psychiatrists are so exasperating as "expert witnesses." The whole book should be required reading for every judge.

Incidentally, Part III is of special interest to those who are concerned with the relationship between mental hospitals and the people who make up the communities which those hospitals serve. In many areas public health physicians have come to recognize mental illness as a problem of paramount concern to them. These physicians, looking at the hospitals from the outside, find the legal barriers to treatment entirely too formidable as they try to guide patients into the hospitals early in the course of illness. Coming from an eminent psychiatrist, with long hospital experience, the attitudes expressed in Part III should be of interest to every public health physician who is concerned with community mental hygiene programs.

HAROLD C. MILES

Health Saboteurs—A Controversial Book on Tonsils and Adenoids—*By Robert William Davis. New York: Pageant Press,* 1953. 306 pp. Price, $4.00.

The purpose of this collection of quotations and comments on the tonsils is clearly to convince the reader that the tonsils do not have "a sufficiently important function at the present time to offset their deleterious effects." Moreover, it is a valiant effort to mobilize the author's arguments and his ideas for "early routine tonsillectomy"—not the removal of every tonsil at four years of age, irrespective of its condition, but

"universal tonsillectomy" at two years of age, or younger if indicated. This procedure "would at once eliminate all senseless, futile arguments as to whether this or that child should have his tonsils removed. Any delay in our advance to this solution of the problem will be paid for in disease and deformity—in the sacrifices of the health and lives of innocent, helpless children. . . ."

This array of quotations, evidence, arguments, and claims for the benefits of tonsillectomy seem to be for both the public and the medical profession—and so it is stated by a reviewer on the cover. But the ambivalence of this reader can only be resolved by involving his personal opinion. That is, the position of Dr. Davis is so extreme that it defeats the laudable purpose of providing information in book form to acquaint parents with the danger of neglecting to have diseased and enlarged tonsils and adenoids attended to. There is too much unsatisfactory "documentation" for the medical profession to take this book very seriously, but the concept of "universal" and "routine" tonsillectomy emphasizes the need for more scientific evidence concerning the criteria for sound clinical decisions as to which tonsils should be removed. HAROLD H. MITCHELL

Preinduction Health and Human Relations—*Edited by Esther Emerson Sweeney and Roy E. Dickerson. New York: American Social Hygiene Association,* 1953. 176 pp. Price, $1.25.

There is need in these difficult days for what may be called "practical idealism." Idealism is essential to the mental and moral well-being of every one of us, but our idealism should not be blind. Rather, we must face realities in a practical way, with sound common sense.

The uncertainties for our young people, rooted in these continuing days of national emergency, warrant earnest attention. To this end, the authors, the director of community service for the American Social Hygiene Association and the executive secretary of the Cincinnati Social Hygiene Society, have brought together practical ideas and information usually scattered through several grades and courses in schools. The book is based largely on materials which have been tested in the classroom of several schools and colleges throughout the United States which pioneered courses focused on preinduction problems. As is stated in the foreword, "these schools and colleges viewed preinduction broadly, however, as including youth's induction into adult life itself—into business, industry, the professions, marriage and family life—as well as into the Armed Forces."

This is a curricular resource for teachers and students for use in high schools, colleges, and youth groups. Attention is focused on personal growth and development as well as on the importance of maximum physical, mental, emotional, social, and spiritual health in the defense of America. Problems confronting young people today are analyzed and framework provided for group discussions on personal responsibility for healthful living, emotional development, the role of sex in human life, earning a living, the role of young men and women in national defense, as well as other matters affecting young people today. Specific topics for class discussion and class activities are listed, together with an extensive reference reading list.

The book does not profess to be a be-all and end-all on the subject, but it does lay good ground work. If instructors and students study it with ample opportunity for discussion and outside reading, real gains should be made in understanding and facing the burdens and responsibilities of growing up in our society and keeping alive the ideals of liberty and individual dignity.

JOSEPHINE J. ALBRECHT

Criteria for Retirement—*A Report of a National Conference on Retirement of Older Workers Sponsored by the McGregor Fund and the National Committee on Aging of the National Social Welfare Assembly. Geneva Mathiasen, Editor. New York: Putman's,* 1953. 233 pp. Price, $3.50.

The secretary of the National Committee on Aging has done a fine piece of editing in the preparation of this report. The 75 selected representatives from universities, industry, social work, and other fields meeting in January, 1953, centered their attention upon the questionable effects of compulsory retirement based solely on chronological age. Attention was directed to exploring what other or additional means might produce more satisfactory results. Four sections dealt with (1) Practical Ways of Utilizing Older Workers; (2) Assets and Liabilities of Older Workers; (3) Health and Competence Versus Age; and (4) Substitutes for Arbitrary Retirement. While there was overlapping in the findings of these four groups, the composite summary indicated that the conference agreed that compulsory retirement, based solely on attaining any chronological age (usually 65), was unsatisfactory; that on the whole older workers are an asset in industry; that methods of adapting jobs to changing capacities should be studied and applied. The difficulties of the adjustments of the older individual to change and the necessary modifications in practices of business and industry were recognized—and they are many and difficult. An age range of about 10 years was recommended instead of the arbitrary 65 for retirement.

The interrelatedness of the problems of age, work, retirement, and social background from the viewpoint of the worker, the responsibilities of management, workers, unions, government, and the effects in changes of the business cycle on employment and retirement practices are ably presented in three monographs prepared in advance of the conference.

One reading this report is impressed that finding some less arbitrary criterion than a definite chronological age for retirement has no simple solution.

RAYMOND P. KAIGHN

Maps, Representing the World Distribution of Poliomyelitis, 1900–1950; Cholera; Malaria Vectors; Helminthiases, Dengue and Yellow Fever—*New York: American Geographical Society,* 1953. Price, $1.25 each.

The Department of Medical Geography of the American Geographical Society is in the process of compiling an Atlas of Diseases which it is hoped eventually will comprise 25 sheets with an objective "to show the world distribution of selected diseases in a compact, easy to read way. This census of known facts is the first step toward a study of the geographical correlations which foster the occurrence of a specific disease, in a certain area, at a given time." In addition to those listed above, maps on plague, leprosy, and two plates of studies in human starvation have been published.

These maps reflect a substantial extension of the recent interest in global epidemiology. There have been the excellent volumes emanating from the Surgeon General's Office, U. S. Army, and Vol. I of the *World-Atlas of Epidemic Diseases* from Heidelberg, Germany, sponsored by the U. S. Navy Bureau of Medicine and Surgery, which was recently published. All of these are to be welcomed as they bring together scattered and often inaccessible fragments of the widespread knowledge of the distribution of epidemic diseases. All of them reflect the extraordinary increase of our information since Hirsch published his studies in 1883.

It is apparent that the American

Geographical Society has had access to the principal sources of information and these maps carry extensive documentation, both as to basic sources and as to sources by countries. A surprising amount of information has been condensed onto these sheets which undoubtedly will be widely used.

Each reader will have some special interest. One would wish, for example, that the extraordinarily low prevalence of poliomyelitis among persons of the Mongol races might be more apparent than it is in the polio map. Actually most of the cases from the home of the Mongols seem to have been among persons of other descent. One would like, of course, to compare the maps in this series with those in the Heidelberg volume, but they cover different periods and this is not practicable. Both presumably represent honest attempts to indicate recorded facts, although there must be multiple inadequacies in the available information.

Geographical epidemiology has now become a matter of interest to those outside of the medical profession. The combined efforts of geographers, historians, and medical epidemiologists are to be encouraged. These contributions are worthy of commendation.

REGINALD M. ATWATER

Influenza and Other Virus Infections of the Respiratory Tract—*By C. H. Stuart-Harris. Baltimore, Md.: Williams & Wilkins,* 1953. 235 pp. Price, $6.00.

This book is a remarkably fine presentation of the clinical aspects of respiratory viral diseases because it includes detail of the clinical picture interpreted through accurate study of etiologic agents. Furthermore, it relates clinical observations to the epidemiologic phenomena.

The author's continued interest in the patient and in the investigation of respiratory disease is well demonstrated by his willingness to discuss the various forms which are not so readily subject to precise identification—the common cold, febrile catarrh, atypical pneumonia—and even to discuss differential diagnosis from the physician's point of view.

The present status of prevention and its outlook is clearly discussed. Treatment is considered with rare good judgment.

There are few typographical errors. The illustrations are excellent and numerous. The bibliography is widely representative.

Although the book is said to be intended for the physician it can be an excellent reference and source book for all interested in this complicated but rapidly progressing field.

THOMAS FRANCIS, JR.

Natural History of Infectious Disease—*By Sir Macfarlane Burnet (2nd ed.). New York: Cambridge University Press,* 1953. 356 pp. Price, $4.50.

The many readers of the first edition who enjoyed and profited from this fascinating book, out-of-print for many years, were thrilled to hear that a new edition was being prepared. Their keen anticipation has been more than fully rewarded. As an example of clear, appealing, and erudite writing, it has few equals. By blending historical with biological facts, this brilliant investigator has crystallized a concept regarding the nature, the causes, the actions and the combating of the infectious diseases which was only dimly visualized 25 years ago. To the student it is an everlasting, stimulating introduction and to the specialist a source of well integrated information. Every paragraph, in fact, every sentence, surveys the working knowledge of the microbiologist, immunologist, epidemiologist, and public health worker. The fundamentals of the subject outlined in the first edition have not been changed except for the

addition of a fine chapter on antimicrobial drugs. However, every chapter has been rewritten. Such sentences as, "I think the greatest intellectual prize that a virologist can hope for is that some day he should be the first to explain what is the real natural history of serum hepatitis" serve as an introduction to a thoughtful comparison of this with other infections. This book must be read by everybody, not only for pleasure, but for its powerful educational value. K. F. MEYER

The Municipal Year Book 1953—*Edited by Clarence E. Ridley and Orin F. Nolting. Chicago, Ill.: International City Managers' Association*, 1953. 602 pp. Price, $10.00.

A vast amount of information regarding personnel, finances, government, and activities of cities in the United States, is retained and brought up to date in each issue of the *Municipal Year Book*. Among the new sections added this year is one pertaining to hospitals, with data on more than 300 city and city-county hospitals—how the institution is managed, the method of selecting the superintendent, salary, employees, expenditures, and financing of indigent cases.

"Public Health Developments in 1952," a chapter prepared by Dr. Ira V. Hiscock, includes pertinent information on legislation, fluoridation, local health units, housing, and sanitation.

The mean average salaries of health officers in cities of various population groups are included in a table on "Salaries of Municipal Officers."

A useful feature of the *Year Books* is the reference to data in previous issues carried in the index.

EDITH M. BOYD

BOOKS RECEIVED

Listing in this column acknowledges the receipt of books and our appreciation to the senders. Space and the interests of readers will permit review of some, but not all, of the books listed.

AFFECTIVE DISORDERS. PSYCHOANALYTIC CONTRIBUTIONS TO THEIR STUDY. Edited by Phyllis Greenacre. New York: International Universities Press, 1953. 212 pp. Price, $3.00.

BALTIMORE CITY HEALTH DEPARTMENT. THE FIRST THIRTY-FIVE ANNUAL REPORTS: 1815–1849. Baltimore, Md.: City Health Department, 1953. unpaged. Price, $5.00.

THE CHURCH AND MENTAL HEALTH. Edited by Paul B. Maves. New York: Scribner's, 1953. 303 pp. Price, $4.00.

DESIGN AND CONSTRUCTION OF GENERAL HOSPITALS. U. S. Department of Health, Education and Welfare, Public Health Service. New York: Architectural Record, 1953. 214 pp. Price, $12.00.

DESIGN FOR DECISION. Irwin D. J. Bross. New York: Macmillan, 1953. 276 pp. Price, $4.25.

EXCEPTIONAL CHILD, SPECIAL EDUCATION OF THE. Edited by William F. Jenks. Washington, D. C.: Catholic University of America Press, 1953. 156 pp. Price, $2.75 cloth, $2.00 paper.

FILMS IN PSYCHIATRY, PSYCHOLOGY AND MENTAL HEALTH. Adolf Nichtenhauser, Marie L. Coleman, and David S. Ruhe. New York: Health Education Council, 1953. 269 pp. Price, $6.00.

THE HEAD NURSE AT WORK. New York: National League for Nursing, Department of Hospital Nursing, 1953. 59 pp. Price, $1.00.

FOUR STEPS TO BETTER GOVERNMENT OF NEW YORK CITY. A PLAN FOR ACTION. Report of the Temporary State Commission to Study the Organizational Structure of the Government of the City of New York, 1953. 136 pp.

GOURMET COOKING FOR CARDIAC DIETS. Florence Field. Cleveland, Ohio: World Publishing, 1953. 350 pp. Price, $3.50.

HEALTH IN THE LATER YEARS. A Report on the Third Annual Southern Conference on Gerontology Held at the University of Florida January 26–27, 1953. Gainesville, Fla.: University of Florida Press, 1953. 125 pp. Price, $1.50.

HOUSING AN AGING POPULATION. Committee on the Hygiene of Housing, APHA. New York: American Public Health Association, 1953. 92 pp. Price, $1.00.

HOUSING AND BUILDING IN HOT-HUMID AND HOT-DRY CLIMATES. Proceedings of the BRAB Conference, November 18–19, 1952. Washington, D. C.: Building Research Advisory Board, National Research Council, 1953. 177 pp. Price, $6.00.

INFLUENZA—LA GRIPPE. BULLETIN OF THE WORLD HEALTH ORGANIZATION, 1953, 8:591–824. New York: Columbia University Press, 1953. 823 pp. Price, $3.00.

THE LIMITS OF THE EARTH. Fairfield Osborn. Boston: Little, Brown, 1953. 238 pp. Price, $3.50.

MATERNAL DEPENDENCY AND SCHIZOPHRENIA. MOTHERS AND DAUGHTERS IN A THERAPEUTIC GROUP. Joseph Abrahams and Edith Varon. New York: International Universities Press, 1953. 240 pp. Price, $4.00.

MEDICAL SCHOOLS IN THE UNITED STATES AT MID-CENTURY. John E. Deitrick and Robert C. Berson. New York: McGraw-Hill, 1953. 380 pp. Price, $4.50.

ORGANIZATION OF A MEDICAL GROUP PRACTICE PREPAYMENT PROGRAM IN NEW YORK CITY. Louis L. Feldman. New York: Health Insurance Plan of Greater New York, 1953. 90 pp.

PEOPLE'S HEALTH, THE. A HISTORY OF PUBLIC HEALTH IN MINNESOTA TO 1948. Philip D. Jordan. St. Paul, Minn.: Minnesota Historical Society, 1953. 524 pp. Price, $5.00.

PREVENTIVE MEDICINE IN MEDICAL SCHOOLS. Report of Colorado Springs Conference, November, 1952. Katherine G. Clark. Chicago, Ill.: Association of American Medical Colleges (*The Journal of Medical Education*, Part 2, October, 1953). 123 pp. Price, $1.50 cloth; $1.00 paper.

PSYCHOTIC AND NEUROTIC ILLNESSES IN TWINS. Eliot Slater. Medical Research Council, London, England. New York: British Information Services, 1953. 385 pp. Price, $4.75.

RESPIRATORY DISEASES AND ALLERGY. Josef S. Smul. New York: Medical Library Company, 1953. 80 pp. Price, $2.75.

SEX ETHICS AND THE KINSEY REPORTS. Seward Hiltner. New York: Association Press, 1953. 238 pp. Price, $3.00.

SHOCK AND CIRCULATORY HOMEOSTASIS. Transactions of the Second Conference October 19–21, 1952. Harold D. Green, Editor. New York: Josiah Macy, Jr. Foundation, 1953. 275 pp. Price, $3.75.

SPORT MEDICINE. Proceedings of the International Symposium of the Medicine and Physiology of Sports and Athletics at Helsinki 17–18, 1952. Edited by M. J. Karvonen. Helsinki, Finland: Suomalainen Kirjakauppa-Finnish Bookshop, 1953. 229 pp. Price, $3.00.

SYNOPSIS OF MEDICAL PARASITOLOGY. V. E. Brown. Milwaukee, Wis.: V. E. Brown, 512 North 13th St., 1953. 109 pp. Price, $3.50.

SPEECH PROBLEMS OF SCHOOL CHILDREN. Chicago, Ill.: National Society of Crippled Children and Adults, 1953. 61 pp. Price, $1.25.

UNDERSTANDING BOYS. Clarence G. Moser. New York: Association Press, 1953. 188 pp. Price, $2.50.

WHAT DO WE SEE IN '53 FOR GUIDANCE AND HEALTH. Coordinated Conferences on Guidance, Personnel Services, and Health Education sponsored by the University of Wisconsin. Edited by W. H. Southworth and R. Fitzgerald. Madison, Wis.: Kramer Business Service, Gay Building, 1953. 67 pp. Price, $1.00.

WHAT YOU SHOULD KNOW ABOUT MENTAL ILLNESS. Orin Ross Yost. New York: Exposition Press, 1953. 165 pp. Price, $3.50.

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

Are You Someone's Boss?—Five ways to interest industrial workers in their own health and safety, discussed briefly here, may apply as well to others than workers in hazardous trades. If this is so, then the five ways may be of use to administrators generally—even small-scale executives.

ABRAMS, H. K. Motivating Employees for Industrial Health. *Arch. Indust. Hyg. & Occup. Med.* 8, 3:246 (Sept.), 1953.

A Good Question—Is it really important for health workers to be healthy? As one looks about any professional gathering he sees some people for whom the answer seems to be "nay." In this paper bent on "selling" health education as a career, the first-named essential for that job is "good health." Incidentally, the paper is an interesting venture in the field in which a lot more could be done.

ALLEN, R. L. Health Education as Your Career. *J. Health & Phys. Educ.* 24, 8:19 (Oct.), 1953.

Healthy Fault-Finding Department—Here is an unusual paper. Its uniqueness becomes quickly evident in the fragmentary quotations: "We are still doing too little, too late, and not too well, to too few, in the long-neglected field of (first three days) infant mortality." And this: "self-satisfaction with what we had accomplished diverted attention . . . ." Finally this: ". . . we failed to interpret properly the facts . . . ." How many papers have you read recently devoted to the analysis of admitted deficiencies?

BUNDESEN, H. N. Natal Day Deaths *J.A.M.A.* 153, 5:466 (Oct. 3), 1953.

Sky-Rocketing Lung Cancer—This (British) researcher deserves a medal of some sort, for persistence. He became convinced some time ago that cigarette smoking is a cause of lung cancer, and he misses few opportunities to tell the-scientific world of his conviction. When critics disparage his data he comes right back with more statistics—often more telling ones. Some people must be becoming a little uncomfortable!

DOLL, R. Bronchial Carcinoma: Incidence and Etiology. *Brit. M. J.* 4836, 585 (Sept. 12), 1953.

Large Order—A state medical society president, offering ways for practicing physicians and health people to work together, suggests among other educational activities for health agencies, publicity campaigns against fraudulent "health" advertising and public warnings against smoking as a possible cause of cancer.

EGGSTON, A. A. A Champion Team for the Medical Education of the Public. *New York State J. Med.* 53, 19:2245 (Oct. 1), 1953.

For Their Mutual Benefit—This paper might be characterized as an invitation to clinicians and pathologists to extend the limits of their interests, so that they may come together in order that private medicine may contribute to, and profit from, the improvement of clinical epidemiology.

FRANCIS, T. Correlations in Clinical and

Epidemiological Investigation. *Am. J. M. Sc.* 226, 4:376 (Oct.), 1953.

"Patrons Eat with Their Eyes"—Ways to get an acceptable rinse in the process of mechanical dishwashing is a subject of personal, if not of immediate professional interest to those of us who "eat out."

HARTMAN, B. W. How Is Your Dishwashing Machine Operating? *Modern San.* 5, 9:17 (Sept.), 1953.

A Moving Story—If you are at all history-minded, you will like this account of some pioneering ventures in sight-saving which also tells of the heartening progress in the movement to educate nearly blind youngsters.

HATHAWAY, W. An Historical View of the Education of Partially Seeing Children. *Sight-Saving Rev.* 23, 3:148 (Fall), 1953.

New Yardstick—Even though you have little or no immediate responsibility for safeguarding water supplies you will want to know what those who do have that job are thinking about the matter of bacteriological checks. It is a subject on which much of the prestige of public health is based.

MALLMANN, W. L. Water Quality Yardsticks. *J. Am. Water Works A.* 45, 9:917 (Sept.), 1953.

The Complexity of Obesity—"A great deal of advice . . . is being dispensed everyday to both physicians and patients . . . the very multiplicity of (which) testifies to our ignorance of the problem. The results to date of the work summarized here incite this writer, at least, to great caution." They will incite the reader, too, to more caution than some of us possess when we pontificate on this subject.

MAYER, J. The Multiple Etiology of Obesity. *Health News* 30, 10:3 (Oct.), 1953.

Quo Vadis?—We cannot afford to be complacent about a disease which, next to the mental disorders, remains at top rank as our great social tragedy. This is the challenge of a public health statesman. He underscores Dubos' assertion that progress does not necessarily consist of doing more and more of what was done in the past.

PARRAN, T. Tuberculosis: A Time for Decision. *Pub. Health Rep.* 68, 10:921 (Oct.), 1953.

Restrained Hopefulness—Lest you be tempted to add your voice to the chorus proclaiming that polio vaccine is just around the corner, here is still another illuminating assay of the possibilities for the production of a vaccine of avirulent viruses to confer active immunity in man.

SABIN, A. B. Present Status and Future Possibilities of a Vaccine for the Control of Poliomyelitis. *Am. J. Dis. Child.* 86, 3:301 (Sept.), 1953.

Health Examinations Again—A British M.O.H. makes the point that *all* people should get the same health services that expectant mothers, infants, and children get, and that the basis of any health service is the periodic medical examination. He proposes that they be given by a doctor trained in preventive medicine. Forward looking—to say the least!

WARREN, M. D. The Practice of Health. *M. Officer* 90, 11:131 (Sept. 12), 1953.

Successor to the Milk Station—"The purpose . . . is to give physicians a better understanding of health services for children. It attempts to outline . . . what physicians can do . . . to take an intelligent part in local and state planning for child health improvement." Let's hope this report succeeds beyond the wildest dreams of the distinguished committee responsible.

WHEATLEY, G. M., *et al.* The Physician and

the Child Health Services. *Pediatrics* (Part 2) 12, 3:5 (Sept.), 1953.

Credit Home Care—Does the child facing prolonged bed care prefer home or hospital? This study of 45 children with rheumatic fever provides one enlightening answer—it is home! There, with good visiting nurse and medical care, even very sick children do as well medically as they would in the hospital.

YOUNG, D., and ROBSTEIN, M. Home Care of Rheumatic Fever Patients. *J.A.M.A.* 152, 11:987 (July 11), 1953.

If additional information is desired regarding the articles listed in this Bibliography, please communicate directly with the publications in which they appeared; the addresses are furnished for your convenience.

Am. J. Dis. Child. (American Journal of Diseases of Children), 535 N. Dearborn St., Chicago 10, Ill.
Am. J. M. Sc. (American Journal of Medical Sciences), Lea and Febiger, 600 S. Washington Sq., Philadelphia 6, Pa.
Arch. Indust. Hyg. & Occup. Med. (Archives of Industrial Hygiene and Occupational Medicine), 535 N. Dearborn St., Chicago 10, Ill.
Brit. M. J. (British Medical Journal, British Medical Association House, 19 Tavistock Sq., London W.C. 1, England
Health News, New York State Department of Health, Albany 1, N. Y.
J.A.M.A. (Journal of the American Medical Association), 535 N. Dearborn St., Chicago 10, Ill.
J. Am. Water Works A. (Journal of the American Water Works Association), 521 Fifth Ave., New York 17, N. Y.
J. Health & Phys. Educ. (Journal of Health and Physical Education), American Association for Health, Physical Education and Recreation, 1201 16th St., N.W., Washington, D. C.
M. Officer (The Medical Officer), Chronicle House, 72/78 Fleet St., London E.C. 4, England
Modern San. (Modern Sanitation), 855 Avenue of the Americas, New York 1, N. Y.
New York State J. Med. (New York State Journal of Medicine), 292 Madison Ave., New York 17, N. Y.
Pediatrics (Journal of the American Academy of Pediatrics), 301–327 E. Lawrence Ave., Springfield, Ill.
Pub. Health Rep. (Public Health Reports), Superintendent of Documents, Gov. Ptg. Office, Washington, D. C.
Sight-Saving Rev. (Sight-Saving Review), National Society for the Prevention of Blindness, Inc., 1790, Broadway, New York 19, N. Y.

ASSOCIATION NEWS

OFFICERS, 1953–1954

President—Hugh R. Leavell, M.D., Boston, Mass.
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Dr. Leavell Is APHA President

Hugh Rodman Leavell, M.D., Dr. P.H., a native of Louisville, Ky., has become president of the American Public Health Association after having been chosen president-elect at the annual meeting in October, 1952. Dr. Leavell is professor and head of the Department of Public Health Practice of the Harvard School of Public Health in Boston.

He was graduated from the University of Virginia and received his M.D. at Harvard University School of Medicine in 1926. He returned to Louisville after hospital work in the Massachusetts General Hospital, Presbyterian Hospital in New York, and Johns Hopkins Hospital. He followed in the footsteps of his father as a private practitioner of internal medicine.

Hugh Rodman Leavell, M.D., Dr.P.H.

Along with his private practice, he was instructor in medicine, University of Louisville Medical School, from 1930 to 1934, when he was appointed to the position of director of health in the Louisville Health Department. During his years with the Louisville Health Department many advances were made in the quality of public health service and the efficiency with which the department was administered. He, with Mayor Wilson Wyatt, was largely responsible for the combining of the Louisville and Jefferson County Health Departments, which eliminated many overlapping services for the city and county.

In 1938–1939 he attended the Yale Department of Public Health, receiving

his Dr.P.H. in 1940. Upon returning to Louisville, he became professor of public health in the Medical School, holding this position jointly with that in the Health Department.

Dr. Leavell's health activities have extended to international fields. During 1944–1945 he served with the United Nations Relief and Rehabilitation Administration as deputy director of the European Regional Office. He later served as assistant director, division of the Medical Sciences, Rockefeller Foundation, until he accepted his present position in the Harvard School of Public Health in 1946.

Dr. Leavell has been active in civic affairs both in his own community as well as for the nation. He is a member of the Board of Consultants on Medicine and Public Health of the Rockefeller Foundation.

He has been a member of the Board of Directors of the National Health Council since 1949 and served as a member of the Committee on Medical Services, Commission on Reorganization of the Executive Branch of the Government (Hoover Commission) in 1948–1949 and has recently been reappointed to this committee under the new Hoover Commission. He has been a member of the Executive Board and Governing Council of the American Public Health Association since 1943 and was chairman of the Executive Board 1948–1952. He is certified by the American Board of Preventive Medicine, is a Diplomate of the National Board of Medical Examiners, and a member of the board since 1949. He is also certified by the American Board of Internal Medicine and a Fellow in the American College of Physicians.

Dr. Leavell is a member of Phi Beta Kappa, Alpha Omega Alpha, Delta Omega, Phi Kappa Phi, Delta Tau Delta, Phi Rho Sigma; is an Episcopalian and Mason (32° Shriner). He is a member of the Lancet and Harvard Clubs of Boston.

Dr. and Mrs. Leavell have recently returned from a three months' tour of medical and public health institutions in Mexico, Central and South America under the auspices of the Institute of Inter-American Affairs and the U. S. Department of State. Before returning to the United States, Dr. Leavell served in Geneva as chairman of the World Health Organization Expert Committee on Public Health Administration.

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SEDGWICK MEMORIAL MEDAL TO DR. BUCK FOR 1953

CARL E. BUCK, DR.P.H., professor of public health practice, University of Michigan, School of Public Health, Ann Arbor, was the 23rd recipient of the Sedgwick Memorial Medal, presented at the First General Session of the 81st Annual Meeting, American Public Health Association, on November 11, in New York.

The citation was presented by Gaylord W. Anderson, M.D., chairman of the Sedgwick Memorial Committee. The citation and Dr. Buck's response (made for him by Henry F. Vaughan, Dr.P.H.) follow:

CARL E. BUCK, DR.P.H.

THE Sedgwick Medal was established in memory of a great teacher, a great sanitarian, a great leader in the cause of health protection of the public, in honor of one who, though making no scientific discoveries to immortalize his name, tirelessly devoted his professional life to the noble task of shaping a safer and healthier world. In awarding this medal we rightfully honor the memory of William T. Sedgwick for his inspiring leadership in the development of community programs to prolong efficient human life.

It is thus fitting that the American Public Health Association should tonight bestow this distinguished service award upon one of Dr. Sedgwick's most noted pupils who has followed so ably along the pathways that were pioneered by his mentor. There is no scientific discovery that is associated with the name of Carl Buck, no test that carries his imprint, no laboratory that will be visited as the place where he worked. His laboratory has been the community, stretching from coast to coast, from our southern borders into the friendly nation to our north—his workbench—the health agency office where he carefully analyzed the needs of the community and the pattern and efficiency of its health services.

Over the 39 years of his public health experience, Carl Buck has left an indelible imprint upon the public health scene in North America. To call the roll of his state and local studies of public health administration would merely reveal that there are few if any states, few provinces in Canada that have not felt the impact of his keen analysis and his constructive recommendations. His friendly yet candid criticisms and suggestions, based on a singular wealth of administrative experience and knowledge of sound practices, have pointed the way for reorganization or strengthening of the structure of public health and have charted the course of innumerable health programs. Few persons have so influenced the course of development of public health administration as has Carl Buck.

History will long record the achievements of those who by their discoveries advanced the frontiers of human knowledge, but it is apt to forget those tireless workers who have dedicated their lives to the application of these findings to

the promotion of human welfare. Yet without such application the discoveries of the laboratory do not bear fruit. So, tonight, the American Public Health Association takes pleasure in perpetuating the Sedgwick ideal by honoring one of its own family who has made a lasting contribution to the betterment of human health through the guidance and leadership he has given to community agencies in their efforts to apply the contributions of modern science to the prevention of disease. Experienced in the administration of public health, student and critic of administrative procedure, friendly spur to the development of sound programs of public and private agencies, honored teacher, ardent champion of the highest ideals of public service—to Carl E. Buck—in recognition of his constructive and productive studies in administrative practice, the American Public Health Association hereby presents the Sedgwick Medal for distinguished service in public health.

Response by Dr. Buck: Many of us here and countless others, whether we have always realized it or not, have profited and served better those who expected service of us because of the influence and teachings of Dr. William Thompson Sedgwick. Those of us who were fortunate in having him as our teacher have realized more and more as each year passed that it was wise and helpful to be mindful of his precepts and to try to put into practice the principles which he followed and which made him such an outstanding pioneer public health scientist. He was truly an inspirational teacher. He believed in public health so profoundly that one could not be associated with him without trying to emulate his example and culture the principles which guided him and with which he tried to imbue us. While he was first a teacher, he was also a friend and counselor; and, in order that his students get the broadest viewpoints, he saw that we had contact with the others of the then small galaxy of stars such as Drs. Milton Rosenau, George Whipple, and Samuel Prescott, known as the "Big Four" of those days, as well as other prominent people in public health at that time. Some of his pupils, whom you know and who will attest to Dr. Sedgwick's keen interest and affection for those whom he was molding into disciples, were Drs. C-E. A. Winslow, George Palmer, Walter Brown, Stanley Osborn, Donald Armstrong, Phillip Platt, and Mr. Homer Calver.

It might not be amiss to mention some of the principles which he taught us. Probably first of all, he knew that in "humility" "you" comes before "I"; and therefore he believed in being a good listener. He never talked down to and never above the heads of an audience. He never distracted his listeners with ponderous words but used simple language that all could understand. He taught that in measuring accomplishment it always paid to look back over the years, remembering the while that results seldom come rapidly, then to look forward with imagination to the things that should come next. He admonished us never to try to bluff our way through nor to be ashamed to admit our ignorance; that he was wise who knew where to look for the answer. He fully realized the importance of the social sciences as an integral part of public health and emphasized the need for continuous teamwork as basic to a successful program.

Dr. Sedgwick's inspirational teaching proved that he believed in his subject; that he kept contact with the realities of life. He was admired and respected by all; and those who were privileged to know him, loved him. He was my first and most important contact with public health. He sold me on it, and I have

stayed sold ever since. I hope I have followed, in a measure, the pathways which his vision pointed out and along which I have been helped immeasurably by those with whom I have worked.

In humbly accepting the honor which you have so graciously bestowed upon me I wish you to know that whatever accomplishments have resulted should be credited more to the fortunate associations I have had. The superior work of Drs. James Wallace, Gregoire Amyot, Benjamin Horning, George Palmer, Roscoe P. Kandle, Robert Rothermel, and Reginald M. Atwater, each a star in his own right, brought me credit that I have not deserved. Probably my greatest enrichment came from the hundreds of pleasant and profitable contacts in all of the fields of public health throughout practically every state in our great nation and our neighbor, the Dominion of Canada. From lowly clerk to high commissioner, from alderman to governor, hundreds concerned in one way or another with public health have contributed to a very full life.

A listing of all in our profession who have broadened my small sphere of usefulness is impossible. I would not know where to start nor end. But a few I am impelled to mention and to whom I am greatly indebted are: Dr. Henry F. Vaughan, a great statesman, and Drs. C-E. A. Winslow, Haven Emerson, John A. Ferrell, Ira Hiscock, Hugh Leavell, Gaylord Anderson, Wilton Halverson, Col. Larry Fisher, and Mr. Bradley Buell. I am also constantly reminded of the splendid support of Drs. Fred T. Foard and Fred Jackson. I would place them high on the list in public health administration on the North American continent. I wish I could mention others but time does not permit; so I can only express my heartfelt gratitude for your helping hands throughout my career. My life has also been enriched by the sincere and understanding friendships of so many of you. These friendships have perhaps been the most precious of them all. I do, however, wish to pay homage to several who are no longer with us but whose contributions to public health you all know. To be privileged to work with them and to call them friends meant much to me. I refer to Drs. Edwin Oakes Jordan, Victor C. Vaughan, and to the late Drs. Frank Walker, Florence Sabin, Joseph Mountin, and Mr. Barry C. Smith.

The last, and by all means, the most important influence in my life has been my dear wife, Lucile. Many of you know that I was always lost on the occasions when we had to be separated. Her roles were many; hostess, expert fisherman, tireless chauffeur, sympathetic counselor, and understanding and sometimes bossy nurse. She is probably the only woman who knows how to keep house in an automobile and who knows where and how to find things in a car that, for so many years, looked like Fibber McGee's closet.

Words have failed me when I have thought of trying to express my gratitude for this great honor. But, I assure you my emotions are deep. And so, to those who were responsible for selecting me, to you and the hundreds of others who have made my life so full of the finest things, I can only say a fervent and sincere, "Thank You."

EMPLOYMENT SERVICE

The following pages present information for those seeking public health personnel and for those seeking positions in public health.

This is a service of the Association conducted without expense to the employer or employee.

POSITIONS AVAILABLE

Public Health Director—$13,260. Three years' full-time health department experience required, of which two years must have been in an administrative capacity. Oral examination. Wayne County Civil Service Commission, 2200 Cadillac Tower, Detroit 26, Mich.

Health Officer—for local health district of Greater Anchorage; 60,000 population. Formal public health training plus two years' experience in public health administration required. Substitutions permitted. Approximately $12,000, depending on qualifications. Transportation paid from Seattle to Anchorage. Dr. C. N. Hoveland, Chairman, Board of Health, 217 E St., Anchorage, Alaska.

Health Officer—for established county health department. Graduate approved medical school, one year experience in public health administration, between ages 28 and 40 (will accept up to age 55 if sufficient experience). Florida license not required for two years. $7,500–$8,400, depending upon classification; reimbursement for travel in performance of duties. Rapid advancement for good performance. Position must be filled quickly, inquire for particulars. Wilson T. Sowder, M.D., State Health Officer, Box 210, Jacksonville 1, Fla.

Health Officer—Clackamas County, Ore.; city in beautiful Willamette Valley. Population 86,716. $9,000–$11,000, depending on qualifications, plus car mileage. Must have M.P.H. degree and preferably some public health experience. Medical licensure in Oregon required for continued employment. Personal interview required. A. T. Johnson, Merit System Supervisor, Oregon Merit System Council, P. O. Box 231, Portland 7, Ore.

Head, Chronic Disease Control—Washington State Health Department. Eligibility to practice medicine in the State of Washington, completion of graduate training leading to the M.P.H. degree and three years of public health experience required. $9,552–$11,400. Position covered by Merit System and retirement plan. J. A. Kahl, M.D., State Director of Health, Smith Tower, Seattle, Wash.

Medical Health Officer—for Shelby-Effingham County Health Department; central Illinois location; good schools; excellent rural communities. $6,900–$9,000; may start above minimum; must have capacity for good public relations. J. H. Griffin, Teutopolis, Ill., or to Dr. O. G. Kauder, Findlay, Ill.

Administrative Public Health Physician—preferably female; as assistant to medical director in large international organization, New York City; Public health administrative experience essential. $7,780, tax-free, plus allowances. **Box PH 41**, Employment Service, APHA.

Physicians—with or without public health training and **Pediatricians** needed in maternal and child health program. $6,908–$9,887. Civil Service appointment. Dr. E. R. Krumbiegel, Milwaukee Health Dept., City Hall, Milwaukee, Wis.

Well qualified **Medical Superintendent**—in Westmount Tuberculosis Sanatorium, Warren County, Glens Falls, N. Y. Bed capacity 48. $10,000, plus full maintenance with house and automobile furnished. Morris Maslon, M.D., Chairman of the Board of Managers, Westmount Sanatorium, Glens Falls, N. Y.

Professor of Preventive Medicine—Faculty of Medicine, University of Ottawa, Ottawa, Canada. Requirements: M.D. with specialization in preventive medicine and preferably with teaching experience. **Box PH-40**, Employment Service, APHA.

Dental Officer—to provide general dental attention for about 500 Aleut and white residents of the Pribilof Islands, Alaska (Fish and Wildlife Service employees and their families). Salary $7,425, moderate charges made for subsistence supplies and furnished residence. Transportation expenses paid by the Service for 15 month minimum duty tour. Seton H. Thompson, Dept. of Interior, Fish and Wildlife Service, Washington 25, D. C.

Director—State Division of Dental Health. Salary $7,800–$11,212; entrance

salary depending on qualifications. G. D. Carlyle Thompson, Executive Director, State Board of Health, Helena, Mont.

Public Health Dentist—preferably with experience in children's dentistry, to direct public health dental program, including children's clinic. Must have or be eligible for Michigan license. $7,500. Director, Lansing-Ingham County Health Dept., 207 City Hall, Lansing, Mich.

Sanitarian—with California Registration. $311, top $378. County Civil Service, 236 Third St., San Bernardino, Calif.

Sanitarian—for broad program in city of 77,000. $332–$395 per month. Transportation, hospital, and surgical insurance provided. Commissioner of Health, 730 Washington Ave., Racine, Wis.

Director—bureau of sanitation, combined city-county health department serving 200,000. Requirements: B.S. in sanitary science, public health, engineering, or in physical, chemical, biological sciences; M.P.H. degree or equivalent and seven years' experience minimum, 10–15 years preferred. Salary open. Apply, including references. Director, Lansing-Ingham County Health Dept., 207 City Hall, Lansing, Mich.

Bacteriologist—Independent laboratory engaged in industrial research and analytical work. Bacteriologist associates. Central location in Chicago. Salary according to training and experience. The James Laboratries, 189 W. Madison St., Chicago 2, Ill.

Bacteriologists, Zoologists—B.S. and M.S.; women. Research positions open in large, midwestern pharmaceutical company. Interesting work in virus, antibiotics, TB, toxicology, etc. Send personal resumé to **Box L-29,** Employment Service, APHA.

Health Educator—in county health department, between 21–54; must have M.P.H. in health education with three months of supervised field training from school of public health and one year experience in public health education. $397–$460. Gordon W. Peterson, Director of Personnel, Civic Center, San Diego, Calif.

Public Health Nurse—Ulster County Health Department; in both urban and rural areas. $3,000–$3,360 with three annual increments. County car available. Three weeks' vacation. Dr. Dudley W. Hargrave, Health Commissioner, 15 Main St., Kingston, N. Y.

Dental Hygienist — (California licensed) for county health department. Preventive dental program, cooperating with local dentists, public health staff, and nurses in communities and schools. $327–$360 monthly.

Dentist — (California licensed) — Full-time permanent health department position with Mobile Unit. $532–$587. San Diego County Civil Service, 402 Civic Center, San Diego, Calif.

Supervising Public Health Nurse—Applicants must have minimum of two years' experience as public health nurse, plus graduation from accredited nursing school and three years of college study, one year of which must have been in public health nursing. Additional public health nursing experience acceptable on year for year basis up to two years for general college study. Salary $360–$438. County Civil Service, 402 Civic Center, San Diego, Calif.

Public Health Staff Nurse—well established Visiting Nurse Association. Qualified supervision in a community of 85,000 population, near Boston. Director, Visiting Nurse Association, 194 Concord St., Manchester, N. H.

Supervising Nurse and two trained **Public Health Staff Nurses.** Well established county health department in beautiful southern Oregon with ideal climate. Supervising nurse—$365–$400; staff nurses $302–$352, plus travel. Must meet Merit System Council qualifications; A. Erin Merkel, M.D., Director, Jackson County Health Dept., Medford, Ore.

Occupational Therapists — California Department of Public Health has positions in various cities throughout the state. $341–$415. Requires registration with National Registry of Qualified Occupational Therapists and one year or more experience. New graduates may start at $310. Dept. of Public Health, State Personnel Board, 1015 L. St., Sacramento, Calif.

Public Health Nurse—P.H.N. degree required. Immediate appointment. $328. Car furnished. County retirement plan. Hospitalization available. Donald F. Williams, M.D., Health Officer, Route 2, Box 209, Hanford, Calif.

Public Health Nurse—for generalized public health nursing program under good supervision in a beautiful rural county within good commuting distance of New York City. Five-day week; 3 weeks annual vacation. $3,400–$3,800. County cars provided.

Supervising Nurse, County Office Building, 22 Market St., Room 21, Poughkeepsie, N. Y.

POSITIONS WANTED

Administrator or Assistant—in either general hospital, nursing home, home for the aged, rehabilitation center, or prepaid group medical insurance plan. Eight years' hospital experience. Willing to settle anywhere. **Box C-25,** Employment Service, APHA.

Public Health Physician—with M.P.H., experience in local health administration, teaching, and administrative research, desires position in general public health administration or chronic disease control, preferably in city health department, either coast. Age 33. **Box PH-42,** Employment Service, APHA.

Sanitarian—B.S. in biology with chemistry minor. Single, 26 years old, veteran, free to travel in the United States. **Box S-19,** Employment Service, APHA.

Health Educator—Male, veteran, B.S., M.S.P.H., Columbia University. Desires position in public health education. Experience in community, school health and teaching areas. **Box HE-58,** Employment Service, APHA.

Health Educator—Male, 37, married. B.S. in social science; M.S. in guidance; M.P.H. Five years' experience in sanitation; one and one-half years as health educator. Prefer Middle Atlantic States. $5,200 minimum salary. World War II veteran. Walter R. Lalor, **Box 154,** Buffalo, Ill.

Biostatistician—Desires challenging and responsible position in public or mental health. Seven years' experience in setting up statistical systems (including IBM), analysis of data, planning and research on a statewide level. Location incidental to position. Available immediately. **Box ST-9,** Employment Service, APHA.

Statistician—Fifteen years' varied experience, of which seven was in medical research. Analytical and survey statistician with training and experience in mathematical statistics, designing codes, and IBM operations. Organized and administered large statistical staffs performing these operations. **Box ST-8,** Employment Service, APHA.

All communications on the following advertisements should be sent to Burneice Larson, Medical Bureau, Palmolive Building, Chicago 11, Ill.

OPPORTUNITIES AVAILABLE

WANTED: (a) Public health physician to direct health program U. S. possession, average year-round temperature 81°. (b) Public health physician, Diplomate, to serve as chief of staff, foreign operations, large industrial company. (c) County and city health administrator; college town, Midwest. (d) Deputy health commissioner, U. S. dependency. (e) Assistant or associate professor of public health nursing; state university, department of nursing education. (f) Director, visiting nurse program; university city, South; $6,000. (g) Public health nurse to direct school program; residential town, California. (h) Public health nurse to serve as industrial health consultant, several companies. (i) Regional director and also health educator; state health agency; Midwest. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

OPPORTUNITIES WANTED

WANTED: (a) Public health physician; M.P.H., Johns Hopkins; five years, director, city health department (90 personnel). (b) Public health nursing administrator; A.B., M.P.H.; seven years, supervisor, city health department. (c) Health educator; four years, teaching; three years, health educator, city-county health department. (d) Statistician; Ph.D.; five years, teaching; four years, director vital statistics, metropolitan health department. Burneice Larson, Medical Bureau, Palmolive Building, Chicago.

NEWS FROM THE FIELD

WHO NEWS

Again the WHO Newsletter

This column has more than once mentioned WHO's monthly *Newsletter* as a source of imaginatively written information about health matters around the world. The September issue has an article by Professor Abel Wolman on "World Health: the Optimists v. the Pessimists" in which are raised some challenging questions as to the end results of health activities—whether they merely result in more misery of overpopulation or whether they contribute to more human well-being. The author accepts neither the prophets of doom nor the prophets of Utopia. He stresses again what has often been said by Brock Chisholm, that the improvement of health services must take place in the framework of improved agriculture, improved education, improved political administration, and that "the countries in which health reform is expected to move in step with economic and social adjustment must not only be a party to such effort, but must be the prime mover." He concludes, "The single outstanding lesson of international effort during the last five to ten years is that multi-purpose activity is the clue to the success and the speed with which people may be lifted out of the depths of despair."

Readers will be interested in his summary of the possible methods that have been suggested for finding money locally for local services and also in his six-point conclusion.

The *Newsletter* is published by the Division of Public Information, World Health Organization, Geneva, Switzerland. An offset edition in English is also available from WHO's regional office for the Americas, the Pan American Sanitary Bureau, Washington, D. C.

First Health Education Conference

The first of a series of WHO health education conferences was held in London, April 10–18, 1953, for the European Region. Cooperating with the WHO Regional Office for Europe in carrying out the conference were the British and Northern Ireland Ministries of Health and the Department of Health of Scotland. The purpose of the conference was to bring together for mutual discussion medical administrators and those actively engaged in health education work in order to:

1. Identify the constituents of a total program of health education of the public
2. Plan toward expansion of health education within countries and the region as a whole

The conference was made up in general of morning plenary sessions and afternoon discussions. The summarizer, James M. Mackintosh, M.D., professor of public health in the London School of Hygiene and Tropical Medicine, pointed out the following factors in a health education program as emphasized by participants:

1. Local participation of the people
2. Research on methods of health education
3. Teamwork at all levels
4. The need for long-term and short-term goals
5. A broadened base for professional education, including courses in psychology, sociology, personal relationships, and methods of teaching

Vivian V. Drenckhahn, WHO regional health officer, Health Education of the Public, was the conference organizer. Principles of planning as stated by participants were summarized by Ruth E. Grout, Ph.D., associate professor, University of Minnesota School of Public Health. Helen Martikainen led a discussion of methods and technics

of health education. The proceedings of the Conference are not for sale but are available in limited quantity for distribution to libraries and health institutions from the WHO Regional Office for Europe, Palais des Nations, Geneva, Switzerland. *European Conference on Health Education of the Public.*

A similar conference was held in Mexico City in September for the five countries in Central America and Haiti, Dominican Republic, Cuba, Jamaica, and Mexico. According to Dr. Norman Begg, director of the European Region of WHO, a second European conference is being planned for 1955.

The European Regional Office is cooperating in a health education project in Perugia, Italy, a province of half a million population and a city of 100,000. This is the first local project in health education of the public in which the regional office is participating.

Rhine River VD Commission Seminar

WHO is furnishing technical assistance to a 12-week seminar ending December 12, that is being given for port doctors, serologists, and other public health workers by the Rotterdam Port Demonstration Center. This is the Maritime Venereal Disease Control organization for the Rhine River Valley. Cooperating also in the seminar are the Governments of the Netherlands, and the City of Rotterdam, and the Central Organization for Skin and VD Control.

Director of the Center is Dr. E. H. Hermans, who is also president of the International Union Against the Venereal Diseases. Among the speakers was Vivian Drenckhahn, health educator in the European Regional Office.

Improving World Vital Statistics

The UN has issued *Principles for a Vital Statistics System.* The principles are reported to be the final recommendations for the improvement and standardization of vital statistics. They were arrived at on the basis of a survey of procedures in 58 countries, the opinions of 41 governments, views of the Population and Statistical Commissions, and WHO's Expert Committee on Vital Statistics, and individual demographic experts in various parts of the world. The principles are designed both as a goal or target for countries developing vital statistics by the registration method and as a guide for the appraisal of existing systems with a view to improving the quality and comparability of vital statistics. A glossary of terms is included. Available from Columbia University Press, 2960 Broadway, New York 27, N. Y.; 30 cents.

As an early step in putting these vital statistics principles into practice, WHO convened a vital and health statistics conference in London in October, 1953. Some 40 countries were invited to participate, 29 of which had established national committees on vital and health statistics and 11 others in which the national health service or some other central agency carries out the function of such a committee.

Recent Nursing Legislation

Reprint of "Nursing: A Survey of Recent Legislation" from the *International Digest of Health Legislation* has been made available by WHO. The nursing legislation of about 20 countries is reviewed with particular reference to training conditions, approval of schools, powers of nursing councils, practice of professional nursing, and recognition of foreign and earlier qualifications. Columbia University Press, 2960 Broadway, New York 27, N. Y.; 25 cents.

World Directory of Medical Schools

WHO has issued the first *World Directory of Medical Schools.* In both English and French, it lists more than 500 medical teaching institutions in 84 countries and includes such information as admission conditions, teaching staff,

degrees, duration of studies, language of instruction, and tuition fees. The volume is available from the Columbia University Press, 2960 Broadway, New York 27, N. Y.; $4.

PASO Directing Council Meets

The Directing Council of the Pan American Sanitary Organization met in Washington in October. It voted a budget of $2,100,000 for the 1954 operations of the Pan American Sanitary Bureau. In a resolution it approved the development of long-range programs based on continuous survey of needs and resources of member countries. The director of the bureau, Fred L. Soper, M.D., was instructed to plan future programs with a view to:

1. Strengthening the fundamental health services of each country
2. Providing means for training of health services personnel, particularly in developing local and regional resources to this end
3. Coordinating and assisting in the operation of programs for the eradication of such communicable diseases as yellow fever, malaria, smallpox, syphilis, and yaws

Dr. Hernan Urzua, director-general of the Chilean National Health Service, was chosen president. Dr. M. G. Candau, WHO's director-general, who had just attended three other regional meetings, addressed the group. He said in part, "A major function of WHO is to promote the widest knowledge of *public health techniques and administration*, so that any useful discovery or development anywhere may be shared by all."

Dr. Soper's report of 1952 activities, in which he stressed particularly the need for training highly competent technical personnel, was approved and he and his staff were congratulated on the "Hemisphere's progress in health." The 1955, or XIV Pan American Sanitary Conference in Santiago, Chile, was agreed upon.

BALTIMORE PRESERVES THE RECORD

The Baltimore City Health Department has published a facsimile volume of its first 35 annual reports covering the years from 1815 to 1849. Although the health department began its work in 1793, the first annual report appears to have been published in 1815. The volume is first being presented at an Exhibit on the History of Medicine in Maryland, being given in mid-November by the Maryland Historical Society. A foreword by the Baltimore Health Commissioner, Huntington Williams, M.D., details the historical background of these early reports.

NSCCA RECEIVES AWARD

For outstanding achievement and service through its nation-wide program of employment for the crippled, the National Society for Crippled Children and Adults has been awarded the Distinguished Service Certificate by the President's Committee on Employment of the Physically Handicapped. The award is the highest honor that can be conferred upon a cooperating group by the committee. The Easter Seal Society was cited for pioneering many new programs and projects for the handicapped and for the public attention its activities have focused on the national program to employ the physically handicapped. Dr. William T. Sanger, president of the Medical College of Virginia, is president of the National Society.

Citations were also given to the Disabled American Veterans Service Foundation and Goodwill Industries of America, both of Washington, D. C.; and the *Saturday Evening Post*, Philadelphia, Pa.

OREGON'S 50 YEARS OF PUBLIC HEALTH

More than 300 persons from the northwest, headed by Oregon's Governor, Paul L. Patterson, honored the Oregon State Board of Health at a 50th

anniversary banquet in Portland on September 25. Greetings were delivered by Governor Patterson; Portland's Mayor, Fred Peterson; Board President, L. L. Riggs; and Frederick Stricker, M.D., who was Oregon state health officer from 1921 to 1945.

The principal address was by Marshall Dana, banking executive and former editor of the *Oregon Journal*. Listing the accomplishments of the Beaver State's public health team during the past half century, including the country's all-time low maternal mortality rate of 1951, he warned his audience that they will be expected to keep pace with progress made by the "pioneers" of public health in Oregon. He pointed out that the State Board of Health was founded at a time when communicable disease was rampant. Now although these have generally been conquered, new threats to long and productive life have arisen.

He lauded the Oregon State Medical Society, represented at the banquet by John Rankin, M.D., president, for spearheading efforts to establish the State Board of Health in 1903, and for supporting the department during its first half century.

The celebration was sponsored by a Citizens' Public Health Anniversary Committee, directed by Hollister Stolte, M.D., president of the Oregon Public Health Association.

VA BENEFITS FOR KOREA VETERANS

The VA has prepared *Post-Korea Fact Sheet* to provide general information concerning the major benefits the VA administers for veterans who served in the United States Armed Forces anywhere in the world since June 27, 1950. It outlines medical, rehabilitation, education benefits, disability compensation, GI loans, and numerous other details. The *Fact Sheet* may be obtained from the VA Information Service, Washington 25, D. C., and more detailed information may be had from local VA Offices.

SOUTH DAKOTA AND TRICHINOSIS

The 1953 session of the South Dakota Legislature passed legislation prohibiting the feeding of raw garbage to hogs. The Act, which went into effect on July 1, 1953, states briefly that "it shall be unlawful for any person, firm, partnership, or corporation to feed garbage to animals unless such garbage has been heated to a temperature of 212° F." Enforcement of the law and adoption of the necessary rules and regulations are assigned to the state's Livestock Sanitary Board.

An outbreak of vesicular exanthema in the fall of 1952 is reported to have led to the demand for legislative action in the state. Similar legislation is now in effect in 25 other states, according to a report published by the American Public Works Association in May, 1953, and nine other states were then considering such legislation. Canada has since 1916 required the cooking of garbage fed to swine.

Interstate quarantine regulations for the shipment of garbage to be fed to swine across state lines require that it be heat-treated to 212° F. for 30 minutes. The Public Health Service recommends this for all garbage that is to be fed to swine.

DR. CARL E. BUCK DIES

Carl E. Buck, Dr.P.H., professor of public health, University of Michigan School of Public Health, and formerly field director of the American Public Health Association, died in Ann Arbor on November 21 at the age of 62. Since 1948 Dr. Buck had been on the staff of the School of Public Health, following 17 years of service as field director.

On November 11, 1953, at the 81st Annual Meeting of the APHA in New York, Dr. Buck received the Sedgwick Memorial Medal. The Award was be-

stowed "for the unique leadership he has given during nearly four decades to community agencies throughout the United States and Canada in their efforts to apply modern science to disease prevention and health betterment."

Dr. Buck had participated in scores of public health studies, principally at the state level, including those in Arizona, New Mexico, Oklahoma, Michigan, Florida, California, Idaho, Wyoming, Massachusetts, Illinois, Oregon, Alaska, Manitoba; New York City, Philadelphia, Los Angeles County, Calif., and Kansas City, Mo. Particularly remembered is his effective direction of the Colorado state survey which resulted in a reorganization of the State Department of Health.

Dr. Buck was born in Germany of American parents. He was a graduate of Dartmouth College and attended the Massachusetts Institute of Technology. He received the Doctorate in Public Health from the University of Michigan. Between 1924 and 1930 he held several positions in the Detroit Department of Health. He was a former president of the Michigan Public Health Association.

MENTAL HOSPITAL REPORTING AREA

Proceedings are now available of the Second Conference of Mental Hospital Administrators and Physicians held in Washington in February, 1952. (Mental Hospital Statistics, *A.J.P.H.* 42:6, p. 768). This conference was first begun in 1951 to bring about uniformity and comparability in statistics concerning the hospitalized mentally ill. Eleven states are now banded together in a Model Reporting Area for Mental Hospital Statistics. The 1952 discussions should pave the way for enlarging this reporting area. *Proceedings of the Second Conference of Mental Hospital Administrators and Statisticians,* Public Health Service, Gov. Ptg. Office, Washington 25, D. C.; 40 cents.

URBAN CHRONIC SICK STUDY FURTHERED

The Commonwealth Fund has made a grant of $35,000 to the Commission on Chronic Illness toward the cost of a study to determine the prevalence of chronic illness in an urban area. This study, begun in Baltimore in September, is a companion to the Hunterdon County, N. J., examination of prevalence of chronic illness and needs for care in a rural area which was wholly supported by the Commonwealth Fund.

The new grant, supplementing $55,000 made available by the Public Health Service, is being used for the first two steps of the urban study—the initial interviewing of a sample of some 13,500 persons in 4,000 homes, and the checking of medical records for a sample of 1,000 from those interviewed. Trained census takers of the U. S. Bureau of the Census are doing the interviewing over a 12-month period.

SCHOOL AND HEALTH MUSEUM COOPERATE

The Boards of Education of Cleveland and Shaker Heights, Ohio, have each appointed a full-time health educator, whose headquarters will be in the education department of the Health Museum. They will contribute to adult education activities through health chairmen of their community parent-teacher groups, widen the use of health museum facilities and visual aids in the classroom, and work with teachers on inservice training, including demonstration of museum exhibits and the use of exhibit materials in schools.

William G. Walters, a former teacher in the city schools, is Cleveland's health teacher. George V. Leadbetter, in the Cleveland Health Museum for the past two years, is health coordinator for the Shaker Heights Board of Education. Each is a member of the American Public Health Association.

POND DETAILED TO AID DR. KEEFER

M. Allen Pond, chief, Division of Engineering Resources and coordinator of the Community Facilities Program in the Public Health Service, has been detailed to serve as staff assistant to Chester S. Keefer, M.D., special assistant to the Secretary of Health, Education and Welfare. Mr. Pond taught public health at his alma mater, Yale, before entering the Public Health Service at the outset of World War II. During the war he was detailed successively to the Procurement and Assignment Service, War Manpower Commission, and the Federal Public Housing Authority. In 1946 he returned to Yale as assistant professor of public health, re-entering the Service in 1948.

INDUSTRIAL DENTAL HEALTH WORKSHOP

"Occupational Oral-Health in General Dentistry and Public Health" is the theme of a one-day workshop to be held in New York City on January 22, 1954, at the Hotel Statler. The workshop is sponsored by the First District Dental Society of the State of New York and the Institute of Industrial Medicine of New York University's Postgraduate Medical School. Panels on "Oral-Health Standards for the Employee on the Job" and "Scope of Dental Services in Occupational-Health Programs" will be followed by a discussion forum.

Admission is free to members of the health professions. Registration forms from Public Health Workshop, First District Dental Society, Hotel Statler, New York 1, N. Y.

OUTBREAK OF MEASLES IN GREENLAND

Among the foreign letters in the *Journal of the American Medical Association* (153, 6:581 (Oct. 10), 1953), there are summarized recent reports of the Danish Medical Press of an outbreak of measles in 1951 in Greenland, where it is said that only five of 4,262 persons exposed failed to contract the disease. There was evidence that newborn babies carried over no maternal immunity. A case fatality rate of 1.8 per cent is reported, comparable with 0.1 per cent in Denmark. Twenty-five of the deaths are reported to have occurred in the prodromal stage of the disease before the appearance of a rash.

BOARD OF DENTAL PUBLIC HEALTH

The American Board of Dental Public Health announces its next certifying examination on November 4–5, 1954, in Miami, Fla., in conjunction with the annual meeting of the American Dental Association. Candidates must submit their applications to the Secretary of the Board by July 5, 1954. Information and application forms may be obtained from the Secretary, Dr. Philip E. Blackerby, Jr., at 250 Champion St., Battle Creek, Mich.

The board was organized early in 1952 and has had two certifying examinations as a result of which 14 public health dentists have been certified through examinations, in addition to the founders' group.

AMYOTROPHIC SCLEROSIS STUDY

The Public Health Service, with the participation of the Navy Bureau of Medicine and Surgery and the Department of the Interior, in September began a study of amyotrophic lateral sclerosis on the island of Guam. The island was chosen because this crippling fatal disease, best known as the disease from which Lou Gehrig died, is thought to be highly prevalent there. Further, the relatively fixed population represents a good opportunity for determining the possible roles of heredity and environment in the development of the disease.

In charge of the study is Leonard T. Kurland, M.D., chief epidemiologist of the Public Health Service's National Institute of Neurological Diseases and Blindness. He is assisted by Donald

Mulder, M.D., of the U. S. Navy and Drs. K. K. Waering and S. Tillema of the Government of Guam.

The incidence of amyotrophic lateral sclerosis in the United States is unknown. Most neurologists agree, it is reported, that approximately 1,500–2,500 cases occur yearly, with the average case having about three years to live after onset. It occurs most frequently between the ages of 30 and 55.

DISTINGUISHED SERVICE AWARDS

Among the 25 individuals who received Distinguished Service Awards in connection with the Twenty-fifth Anniversary of the Columbia Presbyterian Medical Center in New York City on October 12–13, were three members of the American Public Health Association. They are Haven Emerson, M.D., who is a charter Fellow of the Association and was for 33 years chairman of its Subcommittee on Control of Communicable Diseases. He is a past president of the Association, as well as the recipient of its Lasker Award and Sedgwick Memorial Medal. The other two Association members receiving the Distinguished Service Award are Drs. A. Raymond Dochez, John E. Borne professor emeritus of medical and surgical research, and William Barclay Parsons, professor emeritus of clinical surgery.

CARDIAC VOCATIONAL COUNSELING

A pilot study of vocational counseling for children with heart disease or a history of rheumatic fever has been undertaken by the Vocational Advisory Service of New York with the sponsorship of the New York and American Heart Associations. The seven-year study will serve 360 selected children, of whom about 60 per cent will be rheumatic fever cases without heart disease and 40 per cent rheumatic and congenital heart disease. In addition to serving the individuals selected, the purpose of the study is to develop the essentials for an adequate community counseling program for this group, one that will be applicable to other communities.

The study grew out of the realization by doctors, social workers, and others that unsuitable occupations have often done physical damage to cardiac and rheumatic fever patients, making them unemployable when a suitable occupation might have kept them normally employed and self-supporting.

Chairman of a 15-member planning committee for the study is George M. Wheatley, M.D., vice-president for the Division of Health and Welfare, Metropolitan Life Insurance Company. Chairman both of a medical and a steering committee is Katharine Brownell, M.D., cardiac consultant of the Lower East Side Rheumatic Fever Project and chairman of the New York Heart Association's Public Health Committee. The Vocational Advisory Service (432 Fourth Ave., New York 16, N. Y.) is a voluntary agency and is sponsored jointly by the New York State Employment Service.

PENNSYLVANIA VOTES LOCAL AID FUNDS

The recent Pennsylvania State Legislature appropriated $250,000 for the biennium 1953–1955 to carry out "provisions of the local health administration law with respect to State grants to county departments of health and to cities eligible for such grants." Since the passage of the permissive local health unit legislation in the state, no county health department has been established by local authority, although Butler County has been organized by the State Health Department as a pilot unit. Bucks and Northampton Counties conducted a referendum vote on establishing a county health department at the recent elections. Bucks County voted favorably, Northampton against, each by three to two.

PERSONALS

RITA R. CHAZAN, M.P.H., has been appointed assistant director, Office of Health Education, Erie County Department of Health, Buffalo, N. Y.

W. MAX CHAPMAN, M.D.,† with the department since November, 1952, first with the Bureau of Acute Communicable Diseases and for the past six months with the Division of Laboratories, has been made head of the single administrative unit created in the California State Department of Health, San Francisco, which embraces the field services of the Clinical Laboratory Act, Biologics Control Act, Animal Care Act, and the administration of the division's responsibility as applied to local public health laboratories.

J. MOORE CAMPBELL, M.D., has retired as deputy secretary of health, Pennsylvania, after 42 years with the Department of Health.

H. TRENDLEY DEAN, D.D.S.,* recently retired director of the National Institute of Dental Research and secretary of the American Dental Association's Council on Dental Research, was given the Distinguished Service Award of the American Association of Public Health Dentists at its recent annual meeting in Cleveland.

PROFESSOR PHILIP DRINKER,† head of the Department of Industrial Hygiene, Harvard School of Public Health, Boston, received the first individual Industrial Health Award from the Houston Chamber of Commerce when he presented a paper on "The London Fog and Air Pollution Problem" at the Sixth Annual Industrial Health Conference, Houston, Tex., on October 1.

MILDRED ELSON, executive director, American Physical Therapy Association, New York City, was president of the First International Congress of the World Confederation for Physical Therapy which met in London on September 7.

NORMAN W. ELTON, M.D.,† formerly of the Gorgas Hospital, Panama, and presently with the Chemical Corps Medical Laboratories, Army Chemical Center, Md., received the Louis Livingston Seaman Prize for 1953 of the Association of Military Surgeons of the United States at the November meeting in recognition of his writings on sylvan yellow fever.

ANITA FAVERMAN, M.D.,* resigned in September, 1952, has returned to her former position as chief, Bureau of Maternal and Child Health, California State Health Department, San Francisco. CHARLOTTE SINGER-BROOKS, M.D.,† has been acting chief in the meantime.

RUTH B. FREEMAN, Ed.D.,* director, Department of Public Health Nursing and associate professor of public health administration, Johns Hopkins School of Hygiene and Public Health, Baltimore, Md., recently completed a survey of public health nursing services for the Department of Health and Public Welfare, Province of Manitoba, Canada.

VAUGHN L. HARTMAN, M.D., has succeeded EARL KLEINSCHMIDT, M.D.,* as commissioner of health, Medina County, Ohio.

RALPH H. HEEREN, M.D.,* director, Division of Preventable Diseases, Iowa State Department of Health, Des Moines, has been named also deputy commissioner of health.

JULIETTE JULIEN,* director of nurses, Rensselaer County (N.Y.) Health Department has been appointed chief nurse for the Foreign Operations Administration in Iran, as a commissioned officer of the Public Health Service, Reserve Corps, on a two-year assignment.

MARCUS D. KOGEL, M.D.,* commissioner of hospitals, New York City, has resigned effective January 1, 1954, to become the first dean of the Albert Einstein College of Medicine of Yeshiva University, Bronx, N. Y.

CHARLES H. LAWRANCE, B.S., M.P.H.,† former senior sanitary engineer, Connecticut State Health Department, is now on the sanitary engineering staff of the California Department of Public Health, San Francisco.

HELEN R. MACGREGOR, J.D.,† former private secretary to Governor Warren of California, has been made a member of the California Youth Authority with offices in San Francisco.

W. B. MCKNIGHT, M.D., has been appointed health officer of Plumas County, Calif., a position which has been vacant for some months.

GEORGE MICHAELSEN, formerly associate chief of the Industrial Health Section, Minnesota Department of Health, is now industrial hygiene engineer, University of Minnesota, Minneapolis.

THELMA S. MINER, M.D.,† recently appointed district health officer in the Watertown area, New York State Health Department, is the first Canadian permanently appointed to a health department position under the state's 1951 permissive legislation.

FRANCIS L. NELSON, previously in the North Dakota Health Department and the Public Health Service, is now associate sanitary

* Fellow.
† Member.

engineer, Division of Sanitary Engineering, South Dakota Health Department, Pierre.

RUTH PARMELEE, M.D., M.P.H.,* of Auburndale, Mass., formerly for many years a missionary in the Near East, has been appointed Commander of the Royal Order of Efpiia (Beneficence) by His Majesty King Paul of the Hellenes.

THOMAS PARRAN, M.D.,* dean of the University of Pittsburgh Graduate School of Public Health, has been reappointed by President Eisenhower as a member of the International Development Advisory Board, Washington, D. C.

W. PHILIP PHAIR, D.D.S., M.P.H.,† has been made secretary of the American Dental Association's Council on Dental Health, succeeding ALLEN O. GRUEBBEL, D.D.S.,* resigned.

E. R. PORTER, formerly with the Columbiana County Health Department, is now health educator, Lorain County Health Department, Ohio.

DAVID B. PRESTON, B.S., M.S., senior sanitary engineer, Connecticut State Health Department, has resigned to join the Department of Water and Sewers of Miami, Fla.

JAMES R. REULING, M.D., past president, National Tuberculosis Association, was awarded the Will Ross Medal of the National Tuberculosis Association at its annual meeting in Los Angeles in May.

LUCILLE DEE RUBIN, former legislative correspondent for United Press, International News Service, and the *New York Times*, has been appointed health publications editor, Office of Public Health Education, New York State Department of Health, Albany.

MAURICE SAINT-MARTIN, M.D.,* formerly bacteriologist in charge, Division of Laboratories, Ministry of Health, Province of Quebec, has been appointed bacteriologist, Hospital Hotel-Dieu, Montreal, Canada.

LEONARD A. SCHEELE, M.D.,* Surgeon General of the Public Health Service, was awarded the honorary degree of Doctor of Science at an academic convocation climaxing the 25th anniversary program at the Columbia-Presbyterian Medical Center, New York City on October 13.

WILLIAM SCHRACK, JR., M.D.,* epidemiologist, Bureau of Health Conservation, Pennsylvania State Department of Health, is on a year's leave to make a study of poliomyelitis in the Philippines.

CARL L. SEBELIUS, D.D.S.,* is director of the new Dental Health Division, Tennessee Department of Public Health. The former Dental Health Service of which he was director has been elevated to division status.

NEUMAN SIFRITT, M.D.,† health commissioner of Marion County, Ohio, since the position was established 33 years ago, has retired.

C. WARREN SMITH, M.D., M.P.H.,† recently returned to the Virgin Islands from a three-and-a-half-year study leave, has been made director of Maternal and Child Health and Crippled Children Services of the Islands' Health Department.

JAMES B. SWAYNE,† director of records and statistics, Arizona State Health Department, has resigned to become head of the Statistics Division, City of Los Angeles Health Department, Calif.

DAVID F. STRIFFLER, D.D.S.,† dental director, public schools of Dearborn, Mich., for the past six years, has been made chief of the newly created Division of Dental Health, New Mexico State Department of Public Health, Santa Fe.

RALPH J. VAN DERWERKER,* chief of the Municipal and Rural Branch, Division of Sanitation, Public Health Service, has resigned to fill the newly created position of chief sanitary engineer, U. S. Coast Guard. He has been succeeded by EUGENE L. LEHR,† who was formerly acting chief of the Community Facilities Branch, Division of Engineering Resources.

ARTHUR WEISSMAN,† supervisor of the Morbidity Research Project, California State Health Department, has resigned to accept a position with the Kaiser Foundation, and WILLIAM MOONEY, recently of the University of Michigan Survey Research Center, has been added to the project staff.

ELLIS F. WHITE, Ph.D., former president of Fitchburg (Mass.) State Teachers College, is director of education, American Social Hygiene Association, New York City.

W. G. WICKREMESINGHE, M.D., Dr.P.H.,* Honorary Fellow APHA, who since 1948 has been director of Medical and Sanitary Services in Ceylon, and who has represented the Republic of Ceylon in many international groups, retired on October 1.

DOROTHY WOODCOCK,† formerly clinical dietitian, Togus Veterans' Hospital, is now on the staff of the Division of Maternal and Child Health, Department of Health and Welfare, Augusta, Maine.

FELIX E. WORMSER,* former vice-president of the St. Joseph Lead Company, New York City, has been appointed assistant secretary of the interior, Washington, D. C.

ROBERT YOHO,* director of health education, Indiana State Department of Health, In-

* Fellow.
† Member.

dianapolis, is now back in his office after a long rest.

DEATHS

COL. FRANK G. CRANDALL, JR., M.D.,* special consultant in allergy and assistant health officer, Los Angeles City Health Department, Calif., on August 25 (Health Officers Section).

ARTHUR L. DEAN, LL.D.,† Vice-President, Alexander and Baldwin Ltd., Honolulu, Hawaii (Unaffiliated).

CHARLES F. GOOD, M.D.,* medical supervisor of Cleveland (Ohio) public schools since 1945, on October 16 at the age of 51 (School Health Section).

VELMA HAY, R.N.,† former Dickinson County (Kans.) public health nurse, became ill with polio September 2, the day after she had assumed her new duties as supervisor of nurses at the Smith County (Kans.) Hospital and died on September 9 (Public Health Nursing).

AUSTIN HOGAN, M.D.,† of Johnstown, N. Y. (Health Officers Section).

SHELDON LANG, M.C.E., P.E.,† consulting sanitary engineer, Great Neck, N. Y., on September 30 (Engineering Section).

CONFERENCES AND DATES

Meetings Coming in December, 1953, and January, February, 1954.

American Academy of Obstetrics and Gynecology. Netherland Plaza Hotel, Cincinnati, Ohio. December 14–16.

American Camping Association. Annual Meeting. New York, N. Y. February 2–6.

American Statistical Association. Shoreham Hotel, Washington, D. C. December 27–30.

Association for Research in Nervous and Mental Diseases. Hotel Roosevelt, New York, N. Y. December 11–12.

Council on Social Work Education. Annual Program Meeting. Washington, D. C. January 27–30.

Pan American Medical Association. International Medical Cruise Congress. S. S. Nieuw Amsterdam. January 6–22.

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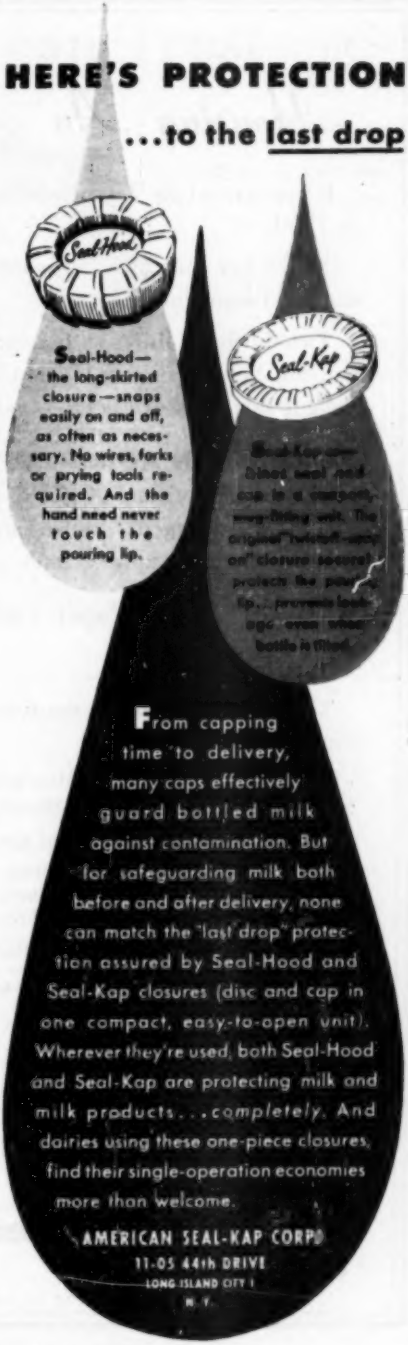
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